# ELECTRIC RAILWAY JOURNAL

DAILY EDITION

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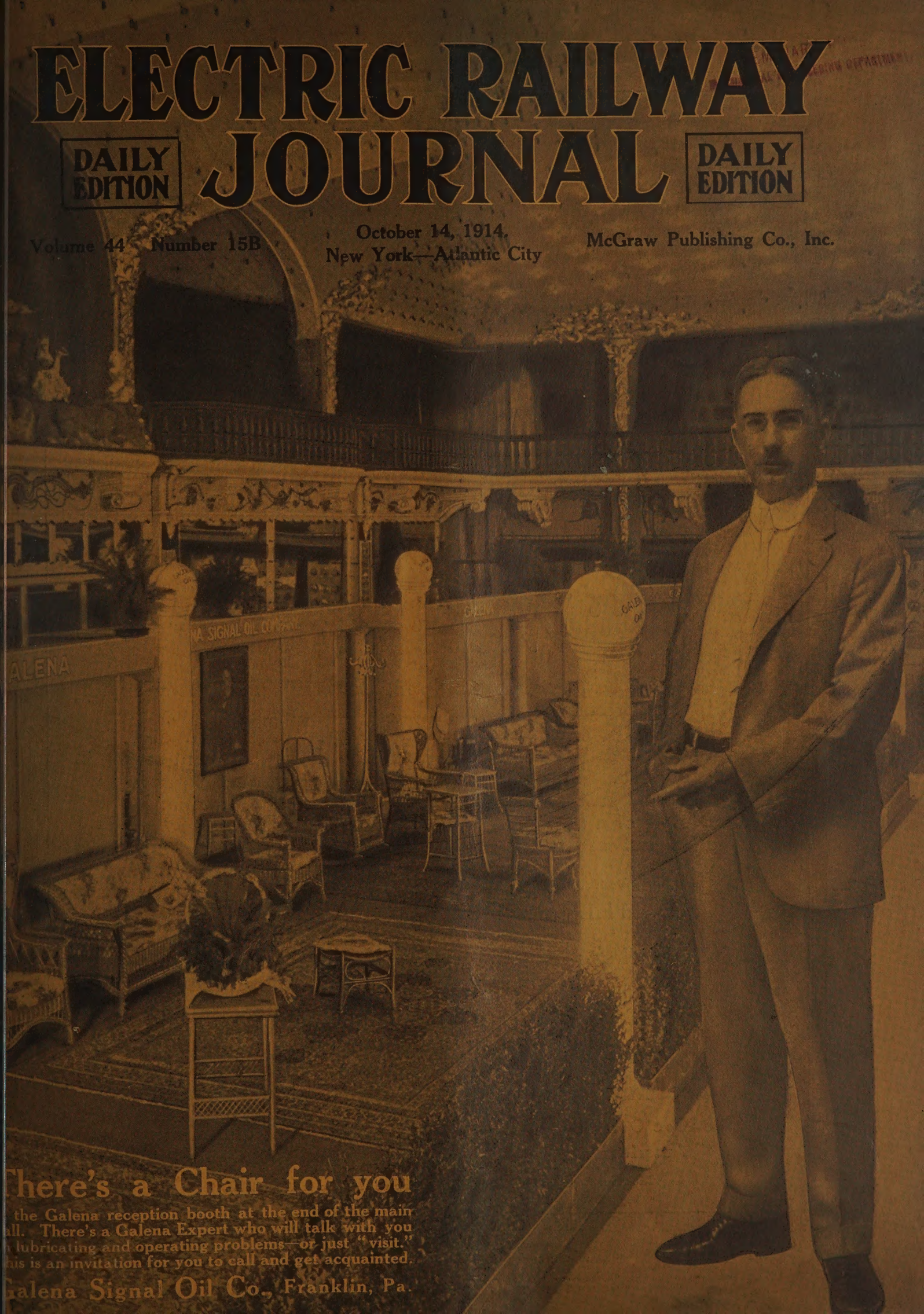
GALENA
GALENA SIGNAL OIL CO.
There's a Chair for you
the Galena reception booth at the end of the main
ll. There's a Galena Expert who will talk with you
lubricating and operating problems—or just "visit."
his is an invitation for you to call and get acquainted.
Galena Signal Oil Co., Franklin, Pa.

# "Welcome"

"I AM mighty glad to see you," said the Westinghouse Representative, as he greeted the General Manager and Joe, the Superintendent, approaching the Westinghouse Exhibit. "We've got a lot of things I want to show you. The boys back in East Pittsburgh have beat all their past good records. We've got a preliminary sample of a new pressed steel motor—just think of it, a **Pressed Steel Railway Motor Frame.** A new improved split frame motor No. 632-B; it's a peach. Come in and let me show you also the new PK Control and the improved HL Control."

"Tom, no wonder you are enthusiastic," answered the General Manager, "the Westinghouse Company seems to know what the railways need and, what is more, they go ahead and do things. Take us in, Tom, and introduce us to some of your engineers. I would like to meet the boys from East Pittsburgh, who are doing this good work."

## Westinghouse Electric & Manufacturing Co.

**Sales Offices in 45 American Cities**

**East Pittsburgh, Pennsylvania**

**Member Society for Electrical Development—"Do it Electrically"**

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# Electric Railway Journal

## DAILY EDITION

**Published at the Annual Conventions of the American Electric Railway Association and Its Affiliated Associations**

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Vol. XLIV NEW YORK—WEDNESDAY, OCTOBER 14, 1914—ATLANTIC CITY NO. 15B

### PROGRAM FOR TO-DAY

CONVENTION MEETINGS

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| 9:30 a.m. | Meeting of Accountants' Association, Accountants' Hall, Convention Pier. |
| 9:30 a.m. | Meeting of Engineering Association, Engineers' Hall, Convention Pier. |
| 9:30 a.m. | Meeting of Claims Association, Claims Hall, Convention Pier. |
| 9:30 a.m. | Meeting of Transportation & Traffic Association, Greek Temple, Convention Pier. |
| 11:00 a.m. | Joint Session of Accountants' and Claims Associations, Accountants' Hall, Convention Pier. |
| 2:00 p.m. | Meeting of American Association, Greek Temple, Convention Pier. |

ENTERTAINMENT

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|---|---|
| 8:00 a.m. | Trapshooting Practice, End of Convention Pier. |
| 10:00 a.m. | Obstacle Golf, Marlborough-Blenheim Lawn. |
| 11:00 a.m. | Morning Concert by Engel's Orchestra, Lobby, Convention Pier. |
| 2:00 p.m. | Trapshooting Tournament, End of Convention Pier. |
| 3:00 p.m. | Afternoon Concert and Thé Dansant, Parisian Garden, Convention Pier. |
| 3:00 p.m. | Finals Auction Bridge Tournament, Reception Room, Convention Pier. |
| 4:00 p.m. | Obstacle Golf, Marlborough-Blenheim Lawn. |
| 9:00 p.m. | Carnival Night, Ball Room, Convention Pier. |

### The President's Address

President Black's address, delivered yesterday, presents a comprehensive survey of the status of the various activities of the association. He naturally takes up first the work for the year of the committee on public relations but follows this with a short account of what has been done by each of the other committees. In connection with the plans of these committees, but particularly with the work of bureau of fare research, he points out that the proposed increase of dues, if adopted, will provide about $16,000 of additional revenue. After urging the formulation of definite plans for the 1915 convention at San Francisco the address concludes with a discussion of the financial problems before the industry. President Black's address is a thoughful consideration of the problems now confronting the electric railway field and the best means of their solution. These questions are generally understood, but it is of help to have them so clearly stated as in the president's address. Through the plans proposed by the committee on public relations and the work being done by the bureau of fare research, the plan of campaign has been formulated. There remain now only the tasks of mobilization and actual engagement. To be successful, however, the actual fighting should be carried out not only *en masse* but individually, and each company should do its best to prove to the public by precept and example, but especially by the latter, that it is doing its best to provide what the public wants in the way of service.

### Standards for Signal Apparatus

That the committee on block signals was able to present yesterday in its report recommendations for two standard designs is a matter whose importance can hardly be exaggerated. Essentially the art of signaling deals with apparatus of considerable complexity. The possible variations in design are innumerable, and these variations, if introduced, add enormously to the cost. This has, unfortunately, been the experience on the steam railroads, where the multiplicity of designs and arrangements fairly baffles description. On the electric railways, however, signaling is in its infancy, and a vast amount of material will be manufactured for their needs during the next decade. The sooner that this can be standardized, the better will it be for all concerned, for cost is the one thing standing between the electric railway industry and complete signal systems. The committee has made an excellent beginning, and it is to be hoped that ensuing committees will continue this phase of the work with as much energy. There is hardly anything they can do that will produce results more directly beneficial to the industry.

### Better Air-Brake Hose Wanted

The report of the committee on equipment of the American Electric Railway Engineering Association breaks new ground this year with a first specification for air-brake hose. The full text of this specification will be found elsewhere in this issue. That a specification of this character should have been found necessary at this time is significant of the arduous conditions which are imposed upon air-brake hose by the operation of electric trains over short radius curves, more especially on city and suburban rapid transit lines. The impetus for this specification is to be traced to the experiences of the Brooklyn Rapid Transit System with the regular M.C.B. product. The frequency of hose trouble despite the use of the best products obtainable led, two years ago, to a systematic study of hose defects by W. G. Gove, superintendent of equipment of the Brooklyn company and also vice-chairman of the committee on equipment. One reason for the quick cracking of air-brake hose was found in the large number of sharp curves on the elevated lines. Another existed in the weakening of the hose due to the presence of oil carried over from the compressors. The present specification is planned to correct the first trouble, but the committee recommends that further studies be made before formulating a specification for hose with an oil-resisting tube. The active aid of all train operators should be given to this committee to demonstrate to the manufacturers of air-brake hose that there is a real need and a large market for a grade which will meet the exceptional requirements of electric railway train service.

### Step Heights and Loading Time

The youngest of the committees, that on transportation engineering, which has replaced the former committee on two-car train operation, brought out in its report yesterday the fact that a change from the customary step arrangement with three rises to one with four reduced the loading time from three seconds to 1¾ seconds per passenger. In the former arrangement the heights of the steps were 16 in. and 14 in. respectively. While no one of these is excessive, according to street railway standards, any architect with whom the design of stairs is an exact science would be horrified at the mere suggestion to extend the rise of a step beyond 8 in. The use of even a 10-in. rise would, according to architectural ideas, work an extreme hardship upon the user, and yet to our minds—influenced as they are by customs of the railway—a 10-in. step seems extraordinarily moderate. The fact that a four-step combination, having 15-in., 10-in., 10-in. and 10-in. rises, can cut the loading time almost in half, notwithstanding the extra rise that is introduced, will undoubtedly come as a surprise. Nevertheless, the point is an important one, and the new committee is to be congratulated for bringing it out so clearly.

# Conventionalities

Mac's lid is alfalfa, also unique.

There are some well-bred axles on exhibit. They have more polish than any other axles we ever met.

Born to blush unseen! MacMurray and Grinnell of the Journal staff in the printing office in Philadelphia.

The official list states that the honor of having Badge No. 1 has fallen to Allen C. Loomis. Who is he, anyway?

The sympathy of the convention goes to George (Doc) Allen, who sprained his knee severely while diving through a big wave.

Charles E. Fritz, engineer of power, Kansas City Railway & Light Company, was routed here over the Chicago special. He is looking 'round.

M. B. Rosevear, superintendent of distribution Public Service Railway, is a proper subject for the "spot light." Less than six years ago he was cadet engineer.

This year our only visitors from foreign shores are W. F. Rainforth, assistant chief engineer of the London General Omnibus Company, and W. G. Gove, of Brooklyn.

C. C. Castle, the cotton broker, has a sign in his booth that says: "This is one bale of cotton. Have you bought yours? Every bale counts." Educated bales, Charley?

In reply to numerous frantic inquiries, Miles Lambert wishes to state that Miss Le Gould, while at Atlantic City, it being chaperoned by Mrs. Mutt, the general manager's wife.

Instead of coming to the convention in comfort Charlie Clark and Terrance Scullin, of Cleveland, drove through from Pittsburgh in Clark's gasoline, sea-going hack. Never again!

In the Detroit United party which came to enjoy the convention are Mr. and Mrs. George Parker and Mr. and Mrs. A. D. B. Van Zandt. Both gentlemen admit that they are in good hands.

An anonymous contributor advises that Bedwell, of the way department of Public Service Railway, say, "If you want your sleepers and track to stay put, bed well." Oof! That's awful!

Don't you feel embarrassed wearing those yellow gloves, storm spectacles, golf skypiece and carrying the big yellow cane? Betcha haven't the nerve to wear them all at once in the home town.

L. F. Howard spent most of yesterday afternoon trying unsuccessfully to get the cars to collide on his own model signal installation. He'd bet S. E. Gillespie a company cigar that it could be done.

Skee-ballers have found the game so fascinating that in order to further studious thought on the subject of the real intricacies of play the skee-ball cocktail has been invented. The line forms on the right.

The Jackson family announces that the Palmer family has nothing in the way of convention honors, on it, Alexander being on the committee on schedules and Walter being on the Electric Railway Journal.

Great is the man who can make two blades of grass sprout where but one perked up before, but far greater is he who can make one car do the work of two. Take 'em off, Jack Dempsey, take 'em off. We know you!

Have you seen the exhibits of wooden paving blocks showing that a block in Boston wears ⅛ in. in fourteen years and that one from New York wears twice as much in eleven years? Life in New York must be very wearing, eh?

C. B. Fairchild, Jr., formerly a technical journalist but now a railway operator, is one of the representatives of the Philadelphia Rapid Transit Company at this convention, the nineteenth at which he has been in attendance.

We were glad to see our collaborator and co-editor of last year, Col. Stedman of Rochester, arrive in Atlantic City on Monday. We have not been favored with any contributions for this year's dailies yet, but we have hopes.

Edward H. Chapin lost some of his Rhode Island Reds last week on account of a young flood in his chicken yard. At last reports he was out in the Aquarium bargaining for turtle eggs so that his Reds could hatch out waterproof pullets.

George Smith, of K. C., Missoo, than whom no one is happier, says that the Kansas City Railway & Light Company holds the palm for the biggest delegation west of the Ohio River. There are seven of these representatives of the Road of Franchise Fite.

The Union Traction Company of Indiana is here in full force. Its delegation includes Mr. and Mrs. Arthur W. Brady, H. A. Nicholl, G. H. Kelsay, Walter Shroyer, S. R. Dunbar and Frank Norviel. Frank brought Mrs. Norviel and their son and daughter.

Did you know that the convention is honored by the presence of the Secretary of State? Presumably he is here to negotiate a peace treaty between the Engineering Association and the American Society of ———— (deletion by censor). His badge is 3715.

Prof. Wildman says some men are cut out for accountants and some for motormen, but sometimes the records get mixed and the railway loses an ideal motorman.—Wonder why everybody looked at everybody else when this was sprung in the accountants' meeting yesterday?

H. M. Wheeler, engineer electrical distribution Chicago Surface Lines, and Ralph H. Rice, principal assistant engineer Board of Supervising Engineers, Chicago, Traction, are chumming together this year and make their headquarters at the Dennis. Regulation, where is thy sting!

The entertainment committee has taken a step in advance this year and arranged a large number of fine comfortable opera chairs for the balcony overlooking the main hall of the pier. These seats should be popular with members and guests who don't dance because they know only last year's steps.

The registration office this year is receiving the assistance of two men delegated from the force of the Brooklyn Rapid Transit Company, two men from the Interborough Rapid Transit Company of New York, two men from the Public Service Railway and two men from the American Railways of Philadelphia.

A block-signal enthusiast has sent us a civil war bulletin via Sayville wireless of fifty years ago to-day. Here it is: General Nachod directed the Federal army to effect a Union with the other United States forces in a Wood of perSimmen trees to protect the Street Railway, its sole line of communications from the Northeast. Wow!

The trap shoot opened on Tuesday morning to the whirring of wings, both man-made and natural, as a flock of geese appeared in sight simultaneously with the firing of the first shot by Mr. Castle. A moment later Jaquith, with his hydro-aeroplane, came in sight and made a graceful sweep near the pier. The firing line was kept well filled all morning, the sound of continuous shooting bringing many out to see if the warships could be seen as well as heard.

Several of the delegates took advantage of the trip to Atlantic City to stop over in Philadelphia on Friday and witness the Braves trim the Athletics. One delegate who did not do this was J. H. Wilson, president of the Mobile Light & Railroad Company. He reached Philadelphia with Mrs. Wilson Friday afternoon, but owing to the game he found every hotel crowded with visitors on account of the game, and although he took a taxi and drove to a large number of hotels, could secure no room. Finally he was obliged to go to Wilmington for the night.

The four o'clock train on the Reading Railroad from Philadelphia to Atlantic City is said to be the fastest regular train in the world. It leaves Camden at 4.10 p. m. and reaches the Reading Station at Atlantic City at 5.05 p. m., making the 55½ miles in fifty-five minutes, or at a greater scheduled speed than 60 m.p.h. This means that the train on part of the run has to reach a speed of 80 m.p.h. It may be a surprise to some to learn that anything so fast should be found near Philadelphia. It might be pointed out, however, that this train undoubtedly represents the demand for a fast train to carry people away from that city. Trains going the opposite direction, or to Philadelphia, operate at only moderate speed.

The play-off game between the White Elephants of the Public Service Railway of New Jersey and the Braves of Brooklyn Rapid Transit System was held at Ebbets Field on Saturday, October 10. More than 5,000 people were on hand to root as only deadhead rooters can. Noted in the boxes behind the home plate were Messrs. Bolen, Boylan, Danforth, Donecker and Schreiber, of the Public Service Railway, and Messrs. Cram, Isaacson, Matthewson, Menden and Siebert of the Brooklyn Rapid Transit System. Much excitement was caused by the efforts of Messrs. Donecker and Siebert to protect their respective hats and as first aids to the hats Mr. Donecker appointed Mr Schreiber as his bodyguard while Mr. Siebert delegated Mr. Cram to protect his interests. The defense in each case was so strong that no casualties resulted. Previous to the game Harry Bullock entertained all officers of the Public Service Railway at the Hamilton Club. Oh, Yes! The score was 6-3 in favor of Brooklyn. Roy Cram says that the teams were composed of actual employees. We know that, Roy. But how were they classed in the payrolls?

E. F. Schneider, president of the Central Electric Railway Association and general manager of the Cleveland, Southwestern & Columbus Railway, was one of the first arrivals among the delegates this year. He is accompanied by Mrs. Schneider and reached Atlantic City last Friday. He did not come entirely for the convention but is combining the trip with a vacation and expects to remain in Atlantic City for some time. It may not be generally known that Mr. Schneider was one of the very early pioneers in the present popular "safety first" movement. Long before these words were coined, Mr. Schneider was impressed with the extreme importance of taking every possible precaution against accidents and the necessity of securing not only the assistance of every railway employee but also of the public on this important matter. In consequence, he began an extended campaign of lectures to his men, the school children and the public generally on the necessity of avoiding all chance for accidents. Most of this work was done by him personally, but he also trained several assistants to help him. A number of these early lectures were printed at the time in the columns of the Electric Railway Journal and are evidences of the early date at which Mr. Schneider began this work.

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S. B. Broomer, East St. Louis, of the membership committee of the Railway Storekeepers' Association, has announced that the association, which embraces a membership in nearly every country in the civilized world, has decided to encourage membership by officers of electric railways. He says that the association already includes in its membership a number of purchasing agents, general storekeepers and division storekeepers of large electric railroads. According to Mr. Broomer, the principal benefit to be derived by the electric railway men from affiliation with the association is the ability of members to secure the years of experience which steam railroad men have had along the lines of purchasing and taking care of the stock.

## GETTING THE MOST FROM THE CONVENTION

One prominent railway manager at this convention has adopted a systematic plan to secure the greatest amount of good possible from it for his company. As it was impossible for the company to send to Atlantic City all of the heads of the departments which it wished, this manager asked those who were to remain at home to give him a statement of the exhibits in which they were particularly interested and the points which they would like to have him look up at the convention. In consequence, he has been visiting the booths of the different manufacturers, asking about the new developments, looking up the new apparatus and making the inquiries requested by the members of his staff. He then is planning to take this information back with him or else he requests the manufacturer to forward it direct to the staff officer.

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## A NEW CLAIMANT FOR THE BANNER

The broadminded policy of President C. P. King of the Washington Railway & Electric Company is well demonstrated by the large delegation of representatives in attendance, among whom are the following: W. F. Ham, R. W. King, William L. Clarke, C. S. Kimball, F. J. Whitehead, J. N. Stevens, G. G. Whitney, W. F. Dement, W. N. De Neal, E. C. Elliott, William S. Ballenger, J. W. Wenner, Charles Reich, Warren Anderson, J. E. R. Shaw and J. Tipton. All of the foregoing are members of the Washington Railway & Electric Company Section No. 4 of the American Electric Railway Association, and six of them, division superintendents, are here as guests of the company section. The Washington Railway & Electric Company, with its sixteen delegates, claims the banner for the largest delegation that has come to the convention from any part of the world east or west of the Ohio River. It challenges all rival claimants to produce, as it has done, the actual names of delegates.

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## LOST AND FOUND COLUMN

Lost—A lady's silver watch, with gold fob, was lost yesterday before noon, somewhere on the pier. Finder will kindly return to Mr. R. W. Spofford, room 191, Marlborough-Blenheim.

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Lost—Manufacturers' Association Badge No. 4434 has been lost. Finder will kindly return to the secretary's office or to room 238, Brighton Hotel.

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Lost—Badge No. 4217 of the Manufacturers' Association, belonging to E. P. Waller, General Electric Company, has been lost. Finder will please return to Electric Railway Journal booth on the pier.

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## MANUFACTURERS' ASSOCIATION MEETING TO-DAY

The annual meeting of the Manufacturers' Association will be held at 4 p. m. to-day, in the Engineers' Meeting Hall. Important work is carried on at these meetings and a full attendance of manufacturers' representatives is urged.

The program for to-day includes remarks by the president, a report on the condition of the association and the election of five new members of the executive committee.

To simplify the voting, it is requested that the members who will cast the votes for their respective companies will take seats on the right-hand side of the hall and other members on the left-hand side.

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Samuel Insull, president of the Commonwealth Edison Company, Chicago, has recently founded for The Franklin Institute, Philadelphia, the Franklin medal, to be awarded from time to time in recognition of distinguished achievements in science and technology. The medal was designed by Dr. R. Tait McKenzie, of The University of Pennsylvania.

## THE CARNIVAL TO-NIGHT

Kee-no dances, contest dances, all sorts of dances with everybody dancing, will be in the air to-night at the carnival. In the prize contest no fair dancers need fear detailed criticism, because a definite plan has been worked out by the committee for taking a ballot. The crowd as the judge will be influenced in the selection of the prize winners not only by the correctness of the steps, but also by the element of personal appeal so that it is not necessary to be an expert to win one of the prizes. Surprises will also be provided, according to the committee.

For the information of the uninitiated it may be said that the Kee-no dance originated 'way back in the dark ages before numbers other than circles were known. Each tribe, to the music of its tom-toms, went forth seeking a lucky circle. Sometimes they reached the Arctic or Antarctic circles and were never heard of again, therefore being unlucky. Others, after many wanderings, in search for this lucky figure returned to their own land and there discovered the family circle. The circle has been handed down from generation to generation through children using rings for games, hoops and wheels, and now it is found on the ballroom floor as a simple means of discovering among a great crowd those to whom Fate points kindly.

## SURPRISES AT TUESDAY'S DANCE

A number of surprises were in store for those present at the informal dance last evening. Miss Edna Van Ripper, an amateur dancer, appeared in a fox trot with Mr. Stark, who introduced this dance the first of last May at the Nassau Hotel, Long Beach. The dance brought forth much applause for its ingenious steps and lively tune. Miss Burdick and Mr. Steve Matthews, Atlantic City's Own, gave their repertoire of dances and then met with a most enthusiastic reception. During the intermission, through the courtesy of the Public Service Railway of New Jersey, a picture film entitled "How Most Street Accidents Occur," was thrown on the screen at the end of the ballroom.

## DAILY PRIZES FOR SKEE-BALL

Daily prizes for the highest score on the skee-ball alleys will be given beginning to-day through the courtesy of the J. D. Este Company. These will be boxes of candy to the ladies and boxes of cigars to the gentlemen. In addition there will be the grand prize that is offered by the committee for the high score for the week.

The high scores on Tuesday were as follows:

| | | | |
|---|---|---|---|
| Mrs. T. W. Connette.... | 220 | Mr. C. G. Chamberlain.. | 310 |
| Mrs. W. E. Bryan..... | 180 | Mr. T. M. Cluley..... | 290 |
| Mrs. R. M. Kerschner... | 180 | | |

The number of games rolled on Tuesday up to 6 p. m. were 3350 and at this time the crowd at the alleys was thicker than ever.

## YESTERDAY'S CARD PARTIES

The first and second rounds of the auction bridge tournament, the second round not being completed, were held yesterday afternoon in the Parisian Garden, Convention Pier. These resulted in the selection of the following ladies who, together with the additional winners of the second round, will play to-day's final round for the prizes: Table 1, Mrs. W. P. Goff, Mrs. S. M. Gallaher; table 2, Mrs. P. E. Wish, Mrs. H. B. Logan; table 3, Mrs. T. Casey, Mrs. J. S. Speer; table 4, Mrs. Tenney, Mrs. Cook; table 5, Mrs. E. Dana, Miss Bright; table 6, Mrs. Thomas, Miss Hurd; table 7, Mrs. Smaw, Mrs. Sofford; table 8, Mrs. Mailand, Mrs. E. D. Priest.

Winners in second-round play not completed: Table A, Mrs. W. P. Goff, Mrs. S. M. Gallaher; table B, Mrs. Cook, Mrs. Tenney; table C, Miss Bright, Mrs. E. Dana.

The following are the winners of the "500" game: First, Mrs. J. A. Cadle; second, Mrs. A. T. Naugle; of pinochle, Mrs. J. E. Brill.

The play will start promptly at 2:30 o'clock in order to finish the second round, which time did not permit being played. Prizes will be announced for the "500" and pinochle games in connection with the announcement of winners at the auction bridge.

## A SAFETY GAME

The Pittsburgh Railways, which were pioneers in the "safety first" movement, known in Pittsburgh as the "safety always" movement, have recently put into effect a new plan for interesting school children in "safety always." This is a board game which is played somewhat like parcheesi, but every part of the game has a railroad significance. It is called the "Pla-Safe" game and is intended to represent the route from the boy's home in one corner of the board to Colfax School at the other end of the board and back home again. There are 118 steps or squares on the trip out and 114 on the way home.

Each square is marked with some wording which is significant. At several points on the route the player has to cross an electric railway track. If he lands on square No. 14, which is that on the electric railway track, he is "struck by the car" and is penalized by being obliged to "go home." This means that he has to start at the beginning again. If he remains on square No. 101, which is where he crosses the steam railroad track, he is "struck by the train" and must go to the hospital for five days. This means that he must lose five turns and then must go back to square No. 82, where he is told that next time he must be more careful.

There are a number of safety squares marked in green. Each provides a certain reward, such as an advance of three squares or one more play. On the other hand, there are certain danger squares marked red, where the player is penalized by being obliged to wait for various lengths of time. Every player must stop at each danger square regardless of whether the number of the die thrown, or of the number shown on the dial spun, would carry him beyond that square.

The game is played either with dice or by spinning a dial to indicate the number of squares each player can move on each turn. Mr. Jones has several of these charts with him, and they are attracting a great deal of attention.

## TUESDAY'S SESSIONS OF THE CLAIMS ASSOCIATION

Following its joint session on Tuesday morning with the Engineering and Transportation & Traffic Associations the Claims Association reconvened in the Claims Hall on the Pier, where were exhibited "safety first" lantern slides by H. B. Bennett, claim agent Fitchburg & Leominster Street Railway. Following this the Association again took up the discussion of increasing interest in the claims index bureau. Upon motion Messrs. Brown, Walsh and Rice were appointed a committee to correspond with all the member companies urging the more general use of the bureau. Secretary Davis was instructed to request Secretary Burritt of the parent association to send out reporting blanks to all member companies.

In the municipal court at Dorchester, Mass., one Foster was found guilty recently of the novel offence of unlawfully appropriating a street car. The defendant and several companions climbed aboard a River Street car of the Boston Elevated Railway at Milton Lower Mills carhouse and assumed the role of conductor and motorman, to the dismay of the passengers and distress of the local employees. After a brief "joy ride" the cries of the passengers to persons on the sidewalks led to the abandonment of the car, with the sequel of a $15 fine after the trial of the principal offender.

## OPENING SESSION OF THE AMERICAN SESSION

The American Association began its annual convention yesterday afternoon in the Greek Temple. President Black called the convention to order at 2 p. m., and delivered his annual address, which appears elsewhere in this issue.

He then introduced Hon. Frank W. Stevens, chairman valuation committee, New York Central Lines, who delivered an address on "Mooted Principles in Valuation." This address will be published in a later issue of this paper.

At the conclusion of Mr. Stevens' address, Arthur W. Brady, Anderson, Ind., moved a vote of thanks to Mr. Stevens for his address. The motion was carried unanimously.

The report of the secretary-treasurer was then read. It appears in another column and was accepted and placed on file.

The report of the committee on subjects was then read. It mentioned the topics which had been selected for the current meeting. The president then called for a report of the committee on education.

### Education

The report of the committee on education was presented by H. H. Norris. It appears elsewhere in this issue.

P. S. Young, Public Service Railway, Newark, asked the cause for the difference in charge for the different courses. Thus, courses *A* and *B* cost approximately $30 each, but together they cost $37. *C* and *D* cost respectively $30 and $37 each, but together they cost $45. He asked if there was any error.

Mr. Norris replied that the figures given in the report were correct. Each is based on the experience of the instruction schools, which cannot handle any course for less than $30.

Prof. V. Karapetoff, Cornell University, explained that the correspondence schools were run on the same basis as accident insurance companies. They depend upon a certain number dropping out. Again, if all of the students should send their problems to the school for correction, it would be bankrupt.

H. A. Bullock believed that it was very advisable for the electric railway companies to provide some form of educational facilities for its employees. This could be done either by the companies taking the matter up individually or as an association. The simplest way was for the association to do it and to turn it over to one of the reputable and recognized correspondence schools. Mr. Bullock traced the steps in the development of the committee's recommendations showing that the present plan is the result of study of all possible methods several other examples of which he cited.

Upon motion the report was adopted.

### Report of the Joint Committee on the Joint Use of Poles

The report of the joint committee on the joint use of poles was then presented by Mr. Harvie. This report is published elsewhere in this issue. Mr. Harvie recounted how the need for joint pole use had developed in New York State some three and a half years ago. It had been first taken up by the state association, but later the matter had been turned over to the American Association. The work had been prosecuted vigorously ever since. The proposed agreement and specification should be a compromise. He thought that the points which had come up most frequently in letters had been cared for but with optional methods, so that members or companies entering into the agreement could fill out blanks provided in the agreement in any way in which they saw fit. The principal items considered were safety and the definite location of wires and circuits. The agreement was very general and left ample latitude for individuality and the exercise of judgment in regard to local conditions, which must always obtain on any properties. He asked that the committee report be accepted and the committee discharged.

President Black then asked the secretary to read a communication from T. D. Mortimer, Milwaukee, which related to this subject. Mr. Mortimer's main point was that the impression might go forth that the proposed joint pole construction was a standard. In that event, those who used non-standard construction would have imposed upon them a heavier burden in defending legal actions. It would be unwise for a company to accept the agreement blindly without bearing in mind the exceptions required by local conditions. If strictly interpreted the adoption of the committee's report would do no harm, but the danger lurked in the separation of the recommendations of the committee from the suggested forms and in the loose reading of the report.

W. J. Harvie said he did not want anyone to feel that the joint pole agreement was intended as a standard of the association. It was simply to be considered as a suggested form subject to modifications according to individual conditions.

After further discussion it was voted that the report be received, filed and promulgated as a guide to member companies but not that it was to be understood as a standard.

The next order of business was a paper by H. C. Donecker on "Organization of a Valuation Staff." This paper appears elsewhere in this issue. The discussion on this paper was confined to Philander Betts and Henry Floy.

According to Mr. Betts, chief engineer of the Board of Public Utility Commissioners of New Jersey, the make-up of such a staff depends upon the purposes for which the valuation is made. If the purpose is to determine just and reasonable rates it is necessary not only to ascertain the reasonable cost of efficiently reproducing the existing properties, but also to determine if possible by an analysis of construction records the original cost and the revenues and expenses from the time of organization to the date of inquiry. It is especially desirable to have the inventory of the property made up by a joint force of employees of the company and the commission. On the valuation staff itself there should be engineers, accountants, operating men and men acquainted with corporation finance. The man best equipped for a complete valuation report is one with an underlying technical education, a later experience in operation and a still later administrative experience with the principles of corporation finance.

Mr. Floy stated that to follow the outline suggested by Mr. Betts was the best way for utility to undertake valuation work. He remarked, however, that the ordinary construction and operating engineer was no more fit to prepare such a valuation for a court or commission than a corporation lawyer was fitted to appear in a criminal court. Another point mentioned by Mr. Floy was that public utilities had not co-operated in valuation work. They should be more interested in all appraisals and valuations of public utility properties, even if they are not directly concerned financially.

President Black then announced the following committees:

Commitee on nominations: Arthur W. Brady, J. H. Pardee and Gen. George H. Harries.

Committee on resolutions: Charles L. Henry, John A. Beeler and Frank Hedley.

Mr. Schreiber then presented the report of the committee on company sections and individual membership. This report is published elsewhere in this issue.

The report of the committee on company membership, of which Frank Hedley is chairman, was then read by the secretary.

President Black then asked all members to be punctual in their attendance at opening of the meeting at 2 p. m. tomorrow. The meeting then adjourned.

## TUESDAY'S MEETING OF THE ACCOUNTANTS' ASSOCIATION

The annual meeting of the Accountants' Association was called to order yesterday morning at 10 o'clock by its president, M. W. Glover, Mobile Light & Railroad Company. After the approval of last year's minutes, the annual address of the president, abstracted elsewhere in this issue, was read by Mr. Glover. M. R. Boylan, Public Service Railway, Newark, N. J., then read the report of the executive committee and afterward his own report as secretary-treasurer of the association, both of which were approved.

Mr. Glover read a letter from L. T. Hixson, Terre Haute, Indianapolis & Eastern Traction Company, Indianapolis, Ind., who is chairman of the committee on interline accounting, to the effect that no changes in interline business had occurred during the year sufficient to justify a report. In regard to the committee on co-operating with the United States bureau of the census, President Glover stated that it had been continued at the request of W. M. Steuart of the bureau of the census, to be called upon by the latter if so desired, but that chairman W. H. Forse, Jr., Union Traction Company of Indiana, Anderson, Ind., had advised that no report would be submitted this year except that the committee had looked over the advance copies of the census report for 1912.

The report of the committee on express and freight accounting was read by E. L. Kasemeier, Ohio Electric Railway, Springfield, Ohio, as published elsewhere in abstract form. In discussing this report O. H. Bernd, Des Moines (Iowa) City Railway, said that his company maintained a through billing arrangement with all the connecting steam railroads, and that it used all the forms recommended by the committee and a few additional ones. He believed that electric railways should conform to steam railroad forms, for the time was coming when the railroads would fully recognize electric railways in the interchange of freight traffic. W. G. Nicholson, Omaha & Council Bluffs Street Railway, Omaha, Neb., moved that the report be accepted and the motion was duly seconded and carried. W. F. Ham, Washington Railway & Electric Company, Washington, D. C., chairman of the committee representing the association at the national annual convention of railway commissioners, read his report covering the activities of the committee during the year and its experiences at that convention last year. He appended the report of the committee on electric railway statistics and accounting submitted to the National Association of Railway Commissioners at that time. Asked by President Glover to explain the connection between the two associations, Mr. Ham said that the National Association of Railway Commissioners was composed of the state and national commissioners. Steam railroad accountants many years ago were given honorary membership in this association. Ten years ago electric railway accountants got into communication with the association on the subject of uniform classification of accounts and a little later were also admitted to honorary membership. Efforts were made some years ago to consolidate into one committee the association's committees handling steam railroad and electric railway accounting problems, but in view of different conditions and the different jurisdiction of the Interstate Commerce Commission over steam lines and electric railways, the delegates of the latter class strenuously objected so that the committee on electric railway statistics and accounting was continued as a separate body. At present there is not much active interest in electric railway accounting in the National Association, but Mr. Ham believes that the Accountants' Association is fortunate in enjoying the present relations with it.

The report of the committee on the standard classification of accounts, abstracted elsewhere in this issue, was read by the chairman, H. L. Wilson, Boston, Mass., Elevated Railway. It was moved by T. P. Kilfoyle, Cleveland (Ohio) Electric Railway, and seconded by H. B. Cavanaugh, Cleveland, Southwestern & Columbus Railway, Cleveland, Ohio, that the report of the committee recommending the adoption of the Interstate Commerce Commission uniform accounting classification be accepted by the association. In response to a call by President Glover, George Geekie, examiner Interstate Commerce Commission, said that two copies each of the new classification had been sent out to 879 parties, including 800 electric railways and 79 commissions and steam railroads. From these only thirty-two or thirty-three replies had been received, although these were helpful and many were incorporated in the accounting system. Mr. Geekie remarked that the delay in getting out the system was not caused by the failure of the commission to appreciate the need of early action but was the result of an overwhelming amount of congressional work being at that time imposed upon the government printer. The commission is now working upon a new bulletin, and bulletin No. 7 is to be reissued under a new number. The cases will be placed under the same numbers but the titles of the accounts will be changed to conform to the new classification. Of the 350 cases to be included the last fifty will be important as showing decisions of the commission under the new classification. Mr. Geekie expressed the appreciation of the Interstate Commerce Commission for the assistance and co-operation that had been shown by the Electric Railway Accountants' Association, for he considered it invaluable in the promulgation of the new uniform system.

H. S. Lyon, Board of Public Utility Commissioners of New Jersey, said that the New Jersey law required the commission to follow the Interstate Commerce Commission system. In January, 1913, it adopted its own schedule for income, profit and loss, and balance sheet accounts. This is not materially different from the Interstate Commerce Commission's new classification, but changes will probably be incorporated so as to comply fully with the latter's new rules. H. C. Hasbrouck, representing the Public Service Commission for the Second District of New York, stated that while he was unable to say anything authoritative, he believed that this commission felt the classification already in use to be better suited for its purposes than the new classification. Experience had shown that a number of points in the New York system could be improved upon by revision, but no complete substitution was likely. In Mr. Hasbrouck's opinion the point most in need of revision was that of depreciation.

In reply to a question from Mr. Kilfoyle as to how many states or commissions have actually adopted the new classification, Mr. Wilson said that the new Massachusetts public utility act required the commission to conform as nearly as possible to the Interstate Commerce Commission system but that the state law made some modifications necessary. Mr. Ham read an extract from the last year's report of the committee on electric railway statistics and accounting of the National Association of Railway Commissioners to the effect that up to the beginning of the present year seventeen states and the national government had conferred upon commissions the authority to prescribe accounting systems. About one-half of these had adopted certain classifications for electric railways, although only New York, Wisconsin and Maryland had adopted complete systems. Supplementing this extract Mr. Ham remarked that twelve years ago individual companies had sacrificed their own ideas in order to secure a uniform accounting system for the association, and that now state commissions should be as willing to give up minor points in order to secure as far as possible absolute uniformity. After this discussion the question of adopting the Interstate Commerce Commission system as

the official system of the Accountants' Association was carried.

In the absence of Frederic Nicholas, chairman of the committee on accounting definitions, the report of this committee was read by R. N. Wallis, Fitchburg & Leominster Street Railway, Fitchburg, Mass. An abstract of this report is published elsewhere in this issue. President Glover emphasized the importance of standardized accounting definitions and said that the committee should be continued. A motion by C. S. Mitchell, Pittsburgh (Pa.) Railways, seconded by Mr. Kilfoyle, to the effect that the report be accepted and that the committee be made a standing one, was carried.

At this point the address of the morning on "The Education of To-day" was delivered by John R. Wildman, professor of accounting, New York University School of Commerce, Accounts and Finance. Mr. Glover, after expressing his appreciation for the very instructive address and stating that all the delegates were destined to become better acquainted with Professor Wildman through his conducting the correspondence accounting course, gave a recess of five minutes for the delegates to meet him personally. It was afterward moved by Mr. Cavanaugh and seconded by W. J. Mead, Cleveland (Ohio) Railway, that the association extend a rising vote of thanks to Professor Wildman for his paper.

In the temporary absence of F. J. Pryor, Jr., American Railways, Philadelphia, Pa., Mr. Boylan read the report of the committee on education. The enrollment in the correspondence course is now of sufficient number to insure its inauguration, although Professor Wildman did not hold the committee strictly to the time limit set. The committee sent out two letters but did not endeavor to use continuous circularizing methods because it desired to be more dignified in its appeal. The demand thus far has been mainly with the smaller companies, the enrollments from the larger companies being disappointing. The prospectus of the course remains unchanged and the first lecture is to be mailed on Oct. 19. Professor Wildman left a few copies of this lecture with Mr. Pryor for distribution to interested parties. The committee expressed thanks to P. S. Young, Public Service Railway, Newark, N. J.; H. H. Norris, ELECTRIC RAILWAY JOURNAL, and E. B. Burritt, American Electric Railway Association, for assistance given. Mr. Wallis moved that the committee be commended for the successful completion of its work and the report was duly accepted. President Glover stated that applications for the correspondence course were available and might be taken by association members to be filled out by their employees.

Mr. Wilson recommended the election of W. B. Brockway and F. E. Smith to honorary membership in the association. After President Glover had asked for the names of other past presidents who should be similarly honored, the two candidates were elected.

Mr. Kilfoyle then mentioned the recommendations that President Glover had made in his address and the latter supplemented his former remarks by stating that the committees were in an unsettled condition upon the election of a new president, and although the executive committee had power to abolish any committees it would be advisable for the association directly to express its wishes regarding committee activity. It should say what committees should be standing and what number of members of such committees should be continued over until the next year, which in Mr. Glover's opinion should be two. Mr. Glover believed that the committee on interline accounting should be consolidated with the freight and express committee, and that there should be a standing committee on passenger accounting and three standing joint committees. It was moved by Mr. Ham and carried that the entire matter should be referred to a special committee consisting of the president, secretary and Mr. Kilfoyle to report this morning.

In reply to a question from President Glover, Mr. Wilson stated that he supposed the association would have the uniform classification printed later in complete form with cases, but that now the association might secure the classification from the government printer and sell it at a low price. Mr. Ham suggested that each member company purchase a liberal supply, at $12 a hundred copies for distribution among its employees.

L. S. Cloud, Peoples Railway, stated that his company was going to use the system of accounts adopted by the association. Upon a show of hands it developed that thirteen companies represented had adopted the Interstate Commerce Commission classification. William Hosking, Butte (Mont.) Electric Railway, said that the system used in Montana was governed by the state commission. President Glover then called upon Lloyd Lyon, who had recently returned from Spain. Mr. Lyon remarked that Spain, as the home of antiquity, was naturally deficient in accounting procedure. The chief accountants there were all foreign, mostly French or Belgian. The system of railway accounts used by Mr. Lyon's company was the uniform system of accounting adopted in 1908. For electric lighting accounts the company used a cumbersome continental standard. According to Mr. Lyon there is an annual audit made by public auditors, in some cases very complete, but in others covering only a condensed income statement and a condensed balance sheet. England, France, Belgium and Spain have no regulatory commissions and if the banks and other financial interests are satisfied with such condensed reports, Mr. Lyon deems these sufficient. The signature of the auditor is a guarantee of the correctness and proper form of the report.

President Glover appointed as the committee on resolutions G. G. Whitney, H. A. Gidney and Walter Shroyer. The following committee on nominations was appointed, R. N. Wallis, J. C. Collins, H. A. Culloden, C. Lahr and T. P. Kilfoyle. The meeting was then adjourned to meet this morning.

## JOINT SESSION OF THE ENGINEERING, TRANSPORTATION AND CLAIMS ASSOCIATIONS

The joint session of the Engineering, Claims and Transportation Associations opened on Tuesday morning at 9:30 o'clock, with President W. F. Weh of the Claims Association in the chair.

The report of the board of accident prevention, of which P. C. Nickel is chairman, was the first order of business. An abstract of this report, which was read by S. B. Hare, is printed elsewhere in this issue. F. C. Henderschott, manager bureau of education New York Edison Company, then presented an address on "Accident Prevention," an abstract of which also appears in this issue.

After a vote of thanks had been extended to the authors of the communications, C. L. S. Tingley of the Accountants' Association called attention to the educational campaign of that association, particularly in securing the services of Professor Wildman, New York University, to conduct a correspondence course for employees of electric railways on both the detailed and broader aspects of accounting.

He said that to make this course permanent and efficient it was very desirable to have as many companies as possible interested in it. While enough enrollments, slightly less than 400, had been obtained to insure the course, it was desirable that as many as possible should join. Mr. Tingley then distributed some explanatory literature. Following this the delegates from the Claims Association adjourned to their own session while the meeting was continued as a joint session of the Engineering and Transportation & Traffic Associations. This meeting is reported elsewhere in this issue.

## JOINT SESSION OF ENGINEERING AND TRANSPORTATION & TRAFFIC ASSOCIATIONS

The joint session of the Engineering and Transportation & Traffic Associations was called to order by Acting President Brush of the latter association on Tuesday morning at 11 o'clock. The first order of business was the report of the joint committee on block signals for electric railways, J. M. Waldron, chairman.

In presenting the report of the committee on block signals Mr. Waldron stated that a sub-committee was to work with the one from the Railway Signals Association during the next year to select from among the standards designs of the Railway Signals Association such ideas as could be properly adopted as standard by the American Electric Railway Association. This would eliminate conflicting designs with a minimum of lost time.

The two standard designs proposed by the committee, namely, a spectacle casting and a standard clearance diagram for semaphore signals were then presented to the association for its consideration. The former was approved as standard but the latter was referred back to the committee so that co-operation with the power distribution committee could be effected and certain limiting dimensions regarding the height of trolley wire could be agreed upon.

Suggested rules for signals were then approved by the association as they appeared in the committee report, and new signal rules for operation under contactor signals were approved with certain recommendations, excepting that Rule 10 appearing in the report was withdrawn by the committee for further consideration after an extended discussion. This rule dealt with the procedure when a train failed to set the signal upon entering a block.

All of the rules as changed were then approved as standards of the Engineering Association, and after this the recommendation that lenses of not less than 8⅜-in. diameter for high speed and 5⅜-in. diameter for moderate speed should be adopted as good present practice. The report as a whole was then approved and a vote of thanks was extended to the committee.

Mr. Stewart, Mahoning & Shenango Valley Railway, then read the report of the committee on transportation engineering, as abstracted elsewhere in this issue. This report was approved and the thanks of the association were extended to the committee. The meeting then adjourned.

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## ADDRESS OF PRESIDENT GLOVER OF THE ACCOUNTANT'S ASSOCIATION

President Glover, in opening his address yesterday before the Accountants' Association, mentioned at first the marvelous development of the electric railway industry since the association was organized on March 23, 1897. He called attention to the fact that the *Street Railway Review* was instrumental in calling the meeting of the association, and that for the last eighteen years the electric railway press had given to the association support and encouragement that was worthy of acknowledgment and appreciation.

The first suggestion made by Mr. Glover was that a rearrangement should be made of the committees so as to provide for certain standing committees and the forming of special committees from time to time as needed. He recommended that in order to secure continuity of work some members of each standing committee be held over from year to year, but that the other members be changed to bring new life and new ideas into the committee work. This suggestion, however, did not refer to the classification committee, which, in Mr. Glover's opinion, should not suffer a change in membership from year to year.

Mr. Glover said that although the Accountants' Association had adopted a uniform system of accounts, less than one-third of the electric railways in the United States used this classification as it stood. The reasons for this were that a number of state commissions prescribed different classifications, and although the association classification agreed with the Interstate Commerce Commission classification, many companies did not report to this commission and therefore were not required to use its classification. Moreover, in some cases companies were not required by law to follow any special classification. Mr. Glover believed that a uniform system of accounts should be adopted by all state commissions and companies, and he hoped that the meeting of W. F. Ham, H. J. Davies and C. L. S. Tingley with the National Association of Railway Commissioners on Nov. 17, 1914, would accomplish much good along this line.

Mr. Glover mentioned the co-operation and sympathy that had been shown between the Central Electric Railway Accountants' and the American Electric Railway Accountants' Associations during the last year on the subject of the tentative uniform system. He then took up three subjects to which he thought the association should devote attention: overhead charges, segregation of freight and passenger expenses and cost accounting. In connection with the first topic, he advised the delegates to read the address of Judge Cooley before the 1911 convention. To Mr. Glover's mind the division of expenses between freight and passenger business was of vital importance in all questions relating to rate increases, and as electric railways must secure higher prices for service or give poorer service, some plan should be devised to obtain such information. In view of the regulations recently prescribed by the Interstate Commerce Commission for a system of cost accounting to be kept showing in detail the cost of all improvements, extensions and changes of physical property, he deemed it desirable for the association to adopt a uniform cost system for maintenance expenses as well as for road and equipment expenditures. Unfortunately certain engineers were apparently unwilling to cooperate with the accounting department on this subject, but Mr. Glover stated emphatically that statements concerning the lack of value of accounting department cost data should not go unchallenged. In his opinion the best results could be obtained only through the co-operation of the two departments, and no interested department should have the right to prepare a cost statement without having it verified by the accounting department.

Mr. Glover recommended that electric railway accountants take the correspondence course arranged for by the committee on education. He also said that accountants should realize the importance of co-operation in adopting a uniform system not only of accounts but also of statistics and of methods of doing business. Such reforms as the securing of uniform monthly and annual reports would have to be and should be brought about by the accountants, but the co-operation of the three other associations should be secured.

In closing his remarks, Mr. Glover deplored instances of unjust public utility regulation, and in expressing optimism for the electric railway future quoted President Wilson's recent remarks regarding the economic indispensability of American railway systems. Mr. Glover was pleased to report that instead of the usual deficit there remained $456.75 out of the appropriation of $2,141.68 for the current year, exclusive of $136.10 properly chargeable to the previous year's expenses.

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As a part of its shop equipment the Shanghai (China) Electric Construction Company, which operates an electric railway there, has installed a complete oxy-acetylene welding and cutting outfit. The company finds considerable economy in generating its own acetylene. The whole of this plant is mounted on a flat trolley which can be transferred to any part of the system. Electric arc welding is also carried out by a small plant designed by the shop staff.

## TUESDAY MORNING'S SESSION OF THE TRANSPORTATION & TRAFFIC ASSOCIATION

The Tuesday morning's session of the Transportation & Traffic Association was called to order by Acting President Brush at 9:15 o'clock. The first order of business was the reading of the following communication on flagging which L. H. Palmer, chairman of the committee on rules, had received from Frank Kingsley, associate editor Electric Railway Journal:

In 1911 this association eliminated from the standard code old rule 203a that permitted trains to proceed under flag protection when they could not reach the despatcher. This rule was considered to be bad practice. However, it is a fact at present that at least a half-dozen interurban roads have reintroduced the old rule or its equivalent in their codes of signal rules. In a communication by John Leisenring printed in the Electric Railway Journal for Sept. 12, it is indicated that this has been done because conditions have changed since 1911 (owing to the wide introduction of signals) and because some such rule is necessary to avoid occasional serious interruptions to traffic by defective signals in stop position. In consequence the committee will, no doubt, agree that a definite expression of opinion should be given at once by the association to relieve the present contradictory situation.

Mr. Palmer said that the matter was a very important one, but agreed with the chair that it should be referred to the incoming committee on rules. Upon motion by Mr. Duffy the matter was disposed of by thus referring Mr. Kingsley's communication.

J. J. Dempsey, chairman, then presented the report of the committee on schedules and time-tables, an abstract of which appears elsewhere in this issue. Mr. Duffy commended the good work which this committee had done during the past five years and agreed with its recommendation that the work on schedules and time-tables should be continued in some form. He doubted whether the arbitrary stop method would be of great value in the smaller cities, although it had worked well in a fair-sized town like Rochester. As to setbacks, the schedule should be so arranged that their use should be dispensed with as far as possible.

R. E. Danforth, Newark, believed that the committee's work next year should include the problem of producing able schedule makers. There were few real schedule makers in the country, and it took much training as well as natural ability to do the work.

R. B. Stearns, Milwaukee, said that some discussions which his company had had recently with the public regulating authorities pointed out the advisability of using the term "designated stop" instead of "arbitrary stop." The use of such a word as "arbitrary" was distressing in the wrong conception that it conveyed. He also suggested that the incoming committee might well occupy its time with the construction of "base schedules," by which he meant the attempt to establish a schedule founded on the minimum service requirements to which, with the use of morning and evening gap schedules, cars could be taken from or added to the schedules at minimum expense. Seasonal changes of schedules should be sufficient and could be determined in advance.

Alexander Jackson, Public Service Railway, said the skip-stop idea had its advantages, but he thought that if the near-side stop could be standardized it would save two to three stops per mile on most properties. To save three stops per mile would save two or three minutes on a round trip which, on a two-minute headway, meant the elimination of one car and on a one and a half-minute headway the possible elimination of two cars.

Upon motion the report of the committees on schedules and time-tables was approved. The meeting was then adjourned in order to permit the joint session with the Engineering and Claims Associations which is reported elsewhere in this issue.

## HOW ACCIDENTS MAY BE PREVENTED

F. C. Henderschott, manager bureau of education New York Edison Company, in his paper on the prevention of accidents before the Transportation & Traffic Association stated in substance as follows:

A casual examination of the subject of accidents in industry leads to the conclusion that conditions are indeed very serious. In the late civil war, according to figures from the adjutant general's office, the number of Union men killed in battle during the four years was 67,058. It is probable that the total number of Confederate soldiers actually killed in battle did not exceed much, if any, the losses of the Union forces, but the most conservative estimate places the total of persons killed by accident in the United States, at the present time, at not less than 75,000 in a single year.

The 1913 report of United States Commissioner of Labor, Hon. Charles P. Neill, upon the conditions of employment in the iron and steel industry states:

"On the one hand for a large group of plants in which the work of organized accident prevention is well developed, the rate falls as low as 167.1 per thousand 300-day workers, while at the other extreme for a group of plants in which organized safety work has not yet been developed, the rate rises to 507.9 per thousand, and in the case of individual plants in the group considerably higher." This is a reduction of 67.1 per cent, or of two accidents out of every three.

To quote Arthur Williams, president of the American Museum of Safety: "No measure of value can be applied to the suffering of individuals who are injured or to the anguish of those who have lost relatives through industrial accidents. There is not only this immediate economic loss, but that which accrues in the future to dependents who, as a result of accident, are left without the means of either sustenance or education. The grief and pain arising from deaths and permanent disabilities wrought from this country's industries, and from carelessness outside of industry—as, for example, upon our highways—far exceed any suffering or sacrifice of life that have occurred or ever could happen through war."

Again he says, in a recent discussion of the subject of industrial accidents: "Perhaps not sentimentally, but practically, human health and life have been held most cheap, not only in our country's industrial development, but in our social order as well. And until recently in industry the most ordinary physical and sanitary precautions have been lacking; in social life we have permitted the development of slums—breeding spots of unhappiness, disease and crime; in our entire industrial system we have neglected to the utmost degree essential elementary protection of health and life."

That Mr. Williams has not overdrawn the picture is proved when we turn to some recent reports by corporations of accomplishments they have made, along the line of accident reduction, during the past year.

The bureau of efficiency of the Northern Pacific Railway, while but a little more than a year old, was able to reduce deaths due to operating accidents on that railway system during the first six months of 1914 as compared with a similar period of 1913 by 73 per cent. The Carnegie Steel Company has been able to reduce its accidents about 71 per cent. Reports from many other industrial corporations lead to the conclusion that it is possible to reduce accidents, where no effort has yet been made in this direction, anywhere from 80 per cent down to 20 per cent, according to the character of the business.

But, as J. L. Murrie, safety engineer, and J. C. Robinson,

chief of the bureau of adjustment of The New York Edison Company, have pointed out in a recent paper on "Safety in the Electric Light Industry": "No device ever has been invented and none ever will be invented that will operate with unvarying success, under all conditions in saving life or limb. The human equation enters too strongly into the proposition and must not be ignored or eliminated. Intelligent co-operation by the employee is a vital essential, and such co-operation is the gospel we must preach. We may reach the extreme limit of ingenuity in the making of a machine that protects a man against danger, but if no mental impulse be exerted the danger is not averted. We can demonstrate the peril of the live wire and the protective value of the rubber glove, but without co-operation between the human mental and the physical material, the warning as to the one and the advice as to the other are alike useless."

In the New York Edison Company 85 per cent of accidents are due to employees, carelessness or negligence, 6 per cent due to carelessness of fellow-servants, 2 per cent due to outside contractors and 7 per cent are chargeable to the company.

The Au Sable Electric Company of Michigan, in a recent report, states that 75 per cent of the accidents in that company are due to carelessness, and Mr. Williams in a recent summary, based, no doubt, upon data gathered by the American Museum of Safety, states that: "Between 70 per cent and 90 per cent of all accidents are the result not of physical defects in our urban industries relating, say, to manufacture, transportation and kindred subjects, but to carelessness and oversight on the part of persons injured, their fellow-workers, or those in control of the means of injury."

The subject of accident prevention was first approached largely from the standpoint of safeguarding machinery. For some time industry devoted its efforts toward accident prevention largely along this line. But the Westinghouse Electric & Manufacturing Company, in a report for 1913, showed that less than 0.5 per cent of the accidents occurring in its plant was due to lack of safeguarding. In this report, Dr. Lauffer attributed a goodly proportion of the accidents directly to the influence of the saloon and predicts that the present generation will wipe out the saloon.

It is not my purpose to discuss prohibition, but surely no analysis of the causes of industrial accidents, deaths and disease would be complete without reference to the evil influence of the intemperate use of liquor. And industry has not been slow in recent years to recognize this fact. Many of the large railroad companies prohibit the sale of liquor upon their trains, and any employee seen in an intoxicated condition is immediately discharged. It is perhaps due, at least in some degree, to the fact that transportation companies have taken this stand, that some of the larger transportation systems have not killed a single passenger in the past five years. But while this condition is gratifying, we are disheartened when we learn that 25,000 children under eighteen years of age have been killed upon railroad tracks during the past twenty years. It is not the fault of the transportation companies that children are upon their tracks, and this leads to the inevitable conclusion that accidents and deaths cannot be reduced to the minimum until there is co-operation upon the part of the public, upon the part of the press, the pulpit, educational institutions and all along the line.

Physical examination of employees is already playing an important part in the reduction of industrial accidents. Dr. Lauffer, in the report, says: "In our opinion the good health campaign is more result-producing in the line of accident prevention than much additional safeguarding of machines."

In a paper on "safety first," presented before the last convention of the National Electric Light Association, Paul Lupke pointed out two important facts. "Newspaper men and other publishers and writers know that the people do not learn facts and arguments on any subject by one announcement, and that it needs constant effort of iteration and reiteration to send the matter home to the people it is wished to reach." And the second point: "The greatest factor operating toward the prevention of accidents is not the prevention device but the 'prevention spirit'."

Several years ago a commission appointed by the federal government visited the big manufacturing industries of Germany, and it was shown by a tabulation of 80,000 cases investigated by them that 80 per cent to 84 per cent of the total number of accidents were chargeable to the employees. This would seem to indicate that about the same degree of negligence on the part of the employees exists the world over; that it is one of the chief characteristics of human nature to be careless.

It is obvious in a paper to consume but twenty minutes very little detail can be given. However, the picture is not so dark as it might appear at first glance. In excess of 1000 industrial institutions have instituted accident prevention systems in the industries of the United States, and while the annual toll paid by this country on account of industrial accident amounts, at the present time, to in excess of $250,000,000 exclusive of loss of time and efficiency of those injured, a good beginning has been made in the direction of improvement.

Recognition has been accorded to the safety engineer and to his collaborator, the efficiency engineer. Industrial corporations are beginning to add the third, and perhaps the most important factor in the entire movement, the educational engineer. More than eighty industrial institutions, including among the number several of the larger railway systems, the larger manufacturing companies, financial, insurance, publishing and retailing institutions have established educational courses on behalf of their employees, and in connection with the better training systems compulsory physical examination is being urged, and due recognition is being given to fatigue, intemperance, worry and the other contributory causes to accidents, diseases and death.

A campaign designed to prevent accidents must be based upon the natural tendency of the human being to be careless. To be effective, the work must be carried on with enthusiasm but not spasmodically.

Since instruction on the subject of safety, by lectures, was introduced into the schools of New Jersey, accidents to school children for the six months ending Sept. 1, 1912, were 44 per cent less than they were during the same period in the previous year.

Once instituted, the safety department of a corporation should be considered a permanent feature and the effort should not be allowed to lapse. This association can render no more valuable service to its members and to the public than by placing its prestige squarely behind its safety board and to co-operate with similar committees from other organizations to the end that industrial accidents, industrial disease and untimely deaths shall be reduced to the lowest possible number throughout the industries of the United States.

## HOWLING FROM THE HOUSE-TOP

*Electric Railway Service*, published in the interest of the Detroit United Railway for general distribution, recently contained the following item which will be of interest to electric railway men generally:

"W. H. Woodbury, whoever he is, writes the Detroit *Journal* calling the attention of people to the fall styles of ladies' hosiery as revealed during the entrance to and exit from Detroit street cars. If such inspection constitutes Mr. Woodbury's form of entertainment he should not endeavor to divert the attention of others from their work."

## PRESIDENT BLACK'S ADDRESS TO THE AMERICAN ASSOCIATION

The past year has been a strenuous one for the majority of our members. Our industry is passing through a most crucial and critical period, not so much by reason of any changes in the art of transportation as because of the attitude of the general public towards all public utilities, as well as from the problems arising through the evolution of governmental regulation. And now we have added to the above the serious economic conditions resulting from the European war. But I cannot help feeling greatly impressed with the vigor and enthusiasm of the men engaged in the electric railway industry; they have met and overcome the difficulties of the past and will unquestionably be able successfully to cope with those of the future.

During the past twenty-five years we have witnessed an industrial development unparalleled in the world's history, and no factor in this development has played a more important part than the electric railway. Cities have been enabled to expand their boundaries far beyond what was deemed possible before the advent of the trolley car, thus eliminating to a great extent the congestion so common to the cities of the old world, and making it possible for workers to find comfortable homes at reasonable cost in the suburbs. For every dollar of profit realized from electric railways, the community at large has gained at least one hundred dollars in taxable values, while the individual owners of suburban real estate have enjoyed increases in the so-called unearned increment aggregating enormous sums.

These results have been brought about largely through the establishment in this country of a flat 5-cent fare, or less, enabling a passenger to travel from any one point in a city to any other regardless of the distance, and, in fact, oftentimes to points far beyond the corporate limits. Owing to the undeveloped system of accounting generally in use by electric railways, and the more than vague ideas of the actual cost of the service, the fact that this long-haul travel was carried on at a considerable loss was far from realized until a comparatively recent period. The more the public received the more it demanded, and at the same time there commenced to be a marked decrease in the value of the token or fare received.

Finally, in 1910, the association appointed a committee to report on the proper basis of rates and fares, which committee was succeeded in 1912 by the committee on cost of transportation. This committee reported to the 1913 convention, recommending the establishment of a bureau of fare research, which culminated in the appointment, on May 1 of this year, of F. W. Doolittle as director of the bureau to work under the direction of the committee on cost of transportation. Mr. Doolittle, from his education and past experience, is peculiarly fitted for the work he has undertaken. An idea of the scope of this work and of its importance and value can be gained by reference to the June, 1914, *Aera*.

### The Committee on Public Relations

When you bestowed upon me at our last convention the honor of the presidency of the association, it devolved upon me not only to direct through its committees and officers what might be styled the routine work, but also, if possible, to enlarge the value of the association to its members.

It appeared to me that no more fertile field presented itself than that occupied by the committee on public relations. This was a regular committee of the association, and had been in existence for a number of years, but its work had been more ornamental than useful.

In the past the association has never experienced any difficulty in finding men for the various committees who were fully capable of dealing with the problems which have arisen from time to time. But the question of public relations is very different from the subjects generally considered by these committees, and the ideas of even those men who had given the matter the most careful and thorough study were vague and indefinite. Everyone recognized the fact that our public relations were in a most unsatisfactory condition and that the improvement of this condition was of vital importance to the industry. But how to tackle the problem was another question. It seemed to me, therefore, important that we should call upon the very best talent at our command, and a committee was appointed, including not only representatives of the electric railways proper but also men from the manufacturing, banking and engineering interests who are identified with our industry. Thomas N. McCarter, president of the Public Service Corporation of New Jersey, was appointed chairman.

Several meetings have been held during the past year and, on the evening of Jan. 29 Mr. McCarter gave a dinner to the members of his committee and also had as his guests several members of the public policy committee of the National Electric Light Association and other gentlemen identified with public utilities.

The results of the discussion which followed the dinner, and of the several meetings of the committee which have been held, are crystallized in the code of principles embodied in the report of the committee to the association, and which it is confidently expected all members of the association will heartily indorse.

The report also recommends the establishment by the association of a bureau of public relations and outlines a comprehensive plan for a publicity and educational campaign which, I trust, will receive most careful thought and study.

While it may not be practicable, under the existing financial stress, for the association to raise any large sum of money to carry out the broader plan outlined, the member companies can and should start the ball rolling in their own localities. The association can point the way and make suggestions and furnish ammunition, but all of these will be in vain, unless the member companies themselves take hold of their own local problems. Electric railways have one peculiar advantage over all other public utilities in the fact that their employees, the motormen and conductors, come into close and intimate daily contact with the public. Here is a tool ready at hand to commence the work which every electric railway should make use of. But, first, it is absolutely essential to establish cordial and harmonious relations between the companies and their employees.

By the establishment of company sections, two important objects will be attained: first, the employees of the company can and will be brought into closer and more intimate contact with the general officers and will obtain a much more comprehensive understanding of their duties, which will result in greater loyalty to the company and better service to the public; second, the individual membership of the association will be materially increased, thus adding strength through members to the organization, as well as increasing its financial resources.

### Proposed Increase in Dues

In connection with this last matter, I desire particularly to call your attention to the report and recommendations of the executive committee contained in the circular letter dated Sept. 10, 1914, which was sent to all of the company members, and the approval of which I strongly urge. As the work of the association broadens, its usefulness to its members increases. We now have 400 electric railways enrolled, representing approximately 90 per cent of the capital invested in the business, and we cannot hope for any material increase in dues from new company members. The revised schedule of dues will provide about $16,000 of additional revenue, which will enable the association to meet the added expenses incurred in connection with the estab-

lishment of the fare research bureau, as well as the other increased activities mentioned in the letter.

### Federal Relations

The past year has been an active one for our committee on federal relations. Matters of great importance to our industry have been pending in Congress and numerous hearings have been held before congressional committees. Under the able chairmanship of one of our ex-presidents, Arthur W. Brady, this committee succeeded in securing the exemption of electric lines from the requirements of the steel car, and other bills relating to physical and operating conditions, some of which were most drastic in character.

As a result of the hearing before the Senate committee on interstate commerce, the railway securities bill, which had been passed by the House of Representatives in such form as to include electric railways engaged in interstate commerce, was reported with an amendment eliminating all electric lines except those forming part of a railway system operated in part by steam. This bill is still pending, but apparently is not being pressed for passage at the present session of Congress.

You are all no doubt more or less familiar with the bill introduced by Congressman Crosser of Ohio, providing for the public ownership of all street railways in the District of Columbia. The passage of this bill would unquestionably give a great impetus to the municipal ownership agitation. While the bill has been favorably reported by the committee having it in charge, by a majority of one, no further action has been taken. This result was unquestionably due to the able arguments presented at the hearings before the committee by General Harries, Thomas N. McCarter, William J. Clark and others, to whom the thanks of of the association are due.

It is appropriate at this point to refer to the efficient work of our Washington representative, the firm of Clark, Prentiss & Clark, and particularly to Horace F. Clark, who rendered especially valuable assistance to the committee on federal relations at the Congressional hearings.

### Other Committee Activities

No report which will be made to the convention embodies more painstaking time and labor than that of the committee on joint use of poles. Consisting of representatives of this association, the American Institute of Electrical Engineers, the National Electric Light Association, and with a representative of the American Telephone & Telegraph Company conferring, this committee has revised the report submitted to the convention last year and has prepared a form of agreement and specification which, it is believed, the member companies will find most valuable in any negotiations they may enter into covering this subject.

The committee on education has also shown most commendable activity. Several courses in electric railway engineering have been arranged for at moderate cost with one of the well-known correspondence schools and a serious effort made to induce college and university faculties to have representatives attend meetings of the association, so that they may better understand the requirements in the education of a young man who desires to enter the electric railway field.

In 1913, our association received an invitation from the American Institute of Electrical Engineers to participate in the organization of a national committee to consider the question of electrolysis. This invitation was accepted and, during the past year, a joint committee was formed with representatives from the following organizations: American Electric Railway Association, American Electric Railway Engineering Association, National Electric Light Association, American Telephone & Telegraph Company, American Institute of Electrical Engineers, National Bureau of Standards, National Gas Association and American Gas Institute. Several meetings of the committee have been held and the work is well organized and now under way.

This matter is one of great importance; the questions involved are not only highly technical from an engineering standpoint, but also involve serious economic considerations, and the association is to be congratulated upon having such able men as R. P. Stevens, A. S. Richey and Calvert Townley as its representatives on the committee.

The results of the work of the other committees of the association are fully set forth in the reports they will submit, all of which are most interesting and unquestionably will prove of great value to the member companies.

### The Affiliated Associations

But while the work of the parent association has been of a very important character during the past year, that of the affiliated associations has hardly been less so. In the Engineering Association, the issuance of the Engineering Manual was an epoch-marking event. This valuable work contains all the standards and recommendations which have been adopted by the association and a quantity of other important information, presenting in concise form the best thought in electric railway engineering practice.

In the promulgation this year of the revised classification of accounts by the Interstate Commerce Commission, the Accountants' Association can congratulate itself upon the culmination in a most satisfactory manner of three years of hard work by one of its most important committees.

Through its education committee this association has arranged for a course in electric railway accounting under Prof. John R. Wildman, of New York University, and has already secured in the neighborhood of 400 enrollments.

The "safety first" movement, which has become a slogan from the Atlantic to the Pacific, will be one of the principal subjects for the Claims Association when the report of the board of accident prevention, which will be presented at a joint session of the Claims, Engineering and Transportation & Traffic Associations, is discussed.

Before the Transportation & Traffic Association many matters of current interest and importance are coming up, such as studies of motor-bus operation and its relation to electric railways, fare boxes and their maintenance costs, etc. This association, during the past year, has had the misfortune to be called upon to accept the resignation of its president, D. A. Hegarty, which was necessitated under the constitution by reason of the severance of his connection with a member company.

### Mid-Year Meeting

Thanks to the efforts of our committee on subjects, under the very efficient management of James D. Mortimer, our members who attended the wid-winter conference held in New York last January enjoyed papers of exceptional value and interest. In the past it had been customary for the Manufacturers' Association to tender a banquet to the parent association at this mid-winter meeting, but the parent association, feeling some embarrassment in accepting this courtesy year after year, decided at our last convention that, in future, this banquet shall be given jointly by the American Association and the Manufacturers' Association. This plan was carried out last January with satisfactory results to both associations. Over 700 of our members and guests attended the dinner and enjoyed the able papers presented by the Hon. Halford Erickson, of the Public Service Commission of Wisconsin, Henry W. Anderson, vice-president and general counsel of the Virginia Railway & Power Company, and Guy E. Tripp, chairman of the board of directors Westinghouse Electric & Manufacturing Company.

### Aera

*Area*, which has just completed its second year, has admirably fulfilled the purpose for which it was established. The

objects of the magazine are threefold; first, to act as a medium of communication between the association and its members; second, to educate electric railway officers and employees in the problems affecting the industry; and third, to present to the public the aspects of these problems from the electric railway standpoint. The increasing interest which the members are taking in the magazine may, I think, be best illustrated by the constantly increasing number of contributors. Altogether, during the past year, more than 360 railway men, interested in the association, prepared material for *Area* and expressions of commendation have been received from many sources. Through the means of clipping sheets sent to more than 1200 daily newspapers throughout the United States, much of the pertinent matter which *Area* contains has been laid before the general public. To the members of the association who have given freely of their time and thought in the preparation of articles, credit for the success which has attended the magazine must be given.

Commencing the first of last January advertising was resumed and while, up to the present time, a sufficient amount is not realized from the sale of this advertising to make *Aera* self-supporting, the revenue from this source is steadily increasing, and it is confidently expected that, in the comparatively near future, the magazine will be absolutely on a self-supporting basis. On behalf of the association I wish to extend thanks to those manufacturers who, through their support of the advertising columns in *Aera*, have lent such material aid to one of the association's important activities. I also, on behalf of the association, desire to extend thanks to the Manufacturers' Association for its hearty co-operation, both financially and morally, in the association's work. The committees of the Manufacturers' Association have worked in perfect harmony with the committees of the parent association in connection with all preparations for our present convention, and the success not only of this convention, but of those held in the past has been due to the able management of that association.

### Indebtedness to the Technical Press

We are also greatly indebted to the technical press of the country for the co-operation and support which has been so generously extended to the association in all its activities, and it is a great pleasure to express our hearty appreciation for this assistance.

### The 1915 Convention

At our mid-winter conference, after considerable discussion, it was finally decided to hold our 1915 convention in San Francisco. Unquestionably, a large number of our members will wish to visit the Pacific Coast during the coming year to see the Panama-Pacific International Exposition which is to be held in San Francisco commencing Feb. 20 next, and, consequently, if we are ever to hold a convention in the Far West, this is the opportune time to do so. In view of the great number of conventions planned to be held in San Francisco, as well as the large number of people who will unquestionably visit the fair, it will be absolutely necessary to make definite plans for our convention at an early date, in order to insure comfortable hotel accommodations for our members and suitable halls for holding our meetings. It will also be necessary for member companies to advise our secretary promptly as to the probable number of delegates which each company will send. This will be the first convention ever held by the association west of the Rocky Mountains and it is due the member companies from that section of the country that the association make every effort to secure a full attendance from the East.

### Problems Before the Electric Railway Industry

At every convention and at every meeting of our association its value to the electric railway industry becomes more and more apparent. The field for its activities broadens and its usefulness increases. At our coming convention several papers will be read dealing with the question of valuations and the rate of return.

Since 1910 there has been a marked falling off in new construction and a reluctance on the part of investors generally to place their money in electric railway securities. In a large measure this has been brought about, no doubt, through governmental regulation. Capital is inherently shy, and always ceases to flow readily when any radical changes occur. In other industries, such as banking, manufacturing, mining, etc., a rate of return ranging from 10 per cent to 20 per cent, or even more, is not considered either remarkable or unreasonable, while in the case of public utilities the state commissions generally have limited the rate of return to a maximum of 8 per cent, and this oftentimes on a depreciated valuation. The reasons given for this comparatively small allowance are based upon the assumption that the business of a public utility is more stable and less subject to competition than other industries.

While it is true that, under the laws in many states at the present time, public utilities are not as subject to competition as other industries, they are not entirely free from it, and it is not true that they are not fully as subject to many other contingencies which may radically affect their income. A striking example is found in the inauguration of motor-bus service in a number of cities and, whether or not these prove successful in the long run, they certainly for the time being materially affect the income of the street railways. Furthermore, all our public utilities, with possibly the exception of water supply, are subject to radical changes in the art, making it necessary oftentimes to discard or scrap large parts of the investment long before it is worn out. Provision for this obsolescence cannot possibly be made without setting up reserves far in excess of what would be permitted by any of the commissions.

Capital naturally will seek those investments in which the rate of return is the highest, due consideration being given to the security of the investment. Unless this fact is recognized by the state commissions and a rate of return allowed commensurate with the risks involved and with the returns which can reasonably be expected from other lines of industry, it will be absolutely impossible to secure fresh capital either for extending present plants or for exploiting new ones.

The European war has, of course, very largely increased the difficulties of securing fresh capital, as is vividly illustrated by the fact that the city of New York recently was obliged to pay 6 per cent for money obtained on notes exempt from many forms of taxation and to run for from one to three years.

We are still a debtor nation. If there was any doubt upon this subject, it surely has been dispelled by the recent course of exchange on London. The money centers of Europe have in the past absorbed vast quantities of our public service securities, but these markets have now been absolutely cut off, and it is hardly probable that they will again be available for a long time to come. This means that we must depend upon American capital for future development, but it will take more than the possibility of an 8 per cent return to secure this capital, especially under the conditions of junior financing, which must be resorted to in many instances. Our task is to convince the public and the commissions that these are facts, not theories, and that, until they are recognized, no further development is possible.

In closing, I personally desire to express to the association my appreciation of the high honor bestowed upon me at our last convention, and my only regret is that I was not so situated as to be able to devote more time to the association's work. I also wish to thank the other officials and various committees for their hearty co-operation and assistance, as whatever success has attended my administration is very largely due to their work.

## THE EDUCATION OF TO-DAY

In the address on modern education, delivered yesterday before the Accountants' Association, John R. Wildman, professor of accounting New York University, drew some analogies between primitive and modern conditions and methods of education in making clear the significance of certain phases of the educational situation as it exists to-day. Primitive education is supposed to have been almost without conscious aim and not to have possessed any genuine ideals, either political, social or moral. In the case of modern education, developed under an ever-increasing complexity of civilization, ideals do exist, but opinions differ greatly as to what is the central aim. Proponents are found for moral character, culture and mental development. Professor Wildman is not opposed to the attainment of these personal attributes, but he takes exception to the worship of these ends as such and to some of the means whereby they are attained.

In Professor Wildman's opinion the ideal education is that which enables one to adapt himself harmoniously to his environments and to utilize natural forces to serve him and his fellows in their needs. Young men should be taught how to get enough money to enable them to provide the necessities, both physical and intellectual. The modern educational system should educate primarily for business but in a way conducive to a strong mind and a fine moral character. The primitive educational method of imitation has been largely abandoned. Modern business education necessitates determining exactly what young men should know and then teaching them this in accordance with the latest and most improved methods for actually conducting business.

Business education, however, is not confined to a study of simply one profession, for every true business man must know certain fundamentals of commerce, accounts and finance. The accountant must naturally study the theory and practice of accounting, but not without regard to the relations which accounting bears to economics, law, finance and business organization. Professor Wildman believes that accountants who have been thus trained perform their work with a clear consciousness of what they are doing instead of serving in a merely routine and perfunctory manner. Moreover, such an education cannot be said to be devoid of rewards, for the knowledge of the subject and the rendering of maximum service to the employer result not only in financial but also in intellectual and moral betterment.

## REPORT OF COMMITTEE ON EDUCATION

The work of the committee on education of the American Association has comprised two parts: (1) a study of existing practice in regard to apprentice training by member companies, and (2) preliminary arrangements for courses of instruction to be given by a correspondence school under the general auspices of the association. The committee found that very few companies have regular apprentice systems for training mechanics and that those which have apprentice systems do not, in general, have regular courses of training. There is apparently no instruction of a school nature given in the electric railway industry, nor is there any extensive co-operation with trade, vocational or night schools. There was a general interest manifested by the membership in the proposed correspondence courses and there is a good prospect of a reasonable enrollment as soon as the courses are put into operation. The committee presented a statement of the tuition fees for four courses: (a) mechanical shop course, (b) electrical shop course, (c) line and track-work course, and (d) power house and substation course. With the exception of the last-named, the fee for which is $37, the tuition fee is $30 for each course. Combinations of two courses can be taken at reduced rates. The committee proposes to follow closely the work of the students.

## REPORT OF THE JOINT COMMITTEE ON TRANSPORTATION ENGINEERING

The joint committee on transportation engineering (Engineering and Transportation & Traffic Associations) reported yesterday on train operation in passenger service, train operation in freight and express service, and effect of car and equipment design on duration of stops. The report on train operation in passenger service does not amplify the arguments of last year's committee, but does present figures to show that on a 6600-volt single-phase line in the Middle West, the use of trains on a holiday permitted an increase of 158 per cent in seating capacity and of 122 per cent in ton-miles at an increase of only 76 per cent in energy consumption.

As to freight and express service, the committee found that with the increased length of trains and runs for the permissible lower schedule speeds the tendency is to use a single-motor car or electric locomotive with trailers instead of multiple-unit equipment. Train operation saved platform expense and energy while it was safer than single cars. In studying the effect of interurban car and equipment design on the duration of stops, the committee made eight plans of passenger, and six plans of freight cars. It found that the double-end two or three-compartment car was generally conceded to be the most flexible design, and it believed that end doors should be incorporated in all cars to meet possible train operation even if the end doors were not available to passengers on the short curves of city sections. Excessively large rear platforms were a mistake, and far less essential than easy steps. All bulkhead doors, except those at the baggage compartment, should swing instead of slide in order to permit stronger bulkheads and less cost for door maintenance. As to freight and express car design, the committee favored two large doors on either side, particularly where less-than-carload shipments are to be handled. In conclusion, the committee said that if electric railways are to take advantage of train operation economies they must be prepared to adapt their terminal facilities for longer trains.

## REPORT OF COMMITTEE ON EXPRESS AND FREIGHT-ACCOUNTING

The committee on express and freight accounting in its first report presented yesterday before the Accountants' Association outlined in detail what are considered the best methods for keeping freight accounts in both agents' and auditors' offices. The system proposed covers in brief the entire field, not only for those companies who are already conducting an interline freight business but also for those who will eventually have such a source of revenue and those who now do only a local business but will in the future exchange shipments with other companies. The committee suggests thirty-one forms that are needed and explains in detail the accounting procedure that is to be applied from the time freight is accepted from shippers until all entries, reports and summaries are completed. The committee considers that the settling of balances due other roads for traffic accounts by allowing them to draw for such is the simplest method and involves the least work.

## REPORT OF COMMITTEE ON STANDARD CLASSIFICATION OF ACCOUNTS

The eighteenth annual report of the committee on the standard classification of accounts presented yesterday before the Accountants' Association constitutes in general a résumé of the committee's activities from the inception of the Accountants' Association in 1897 up to the present date. Its influence in bringing about a standard classification of accounts and the development of this to suit the growth of the industry are briefly described. During the past two years, in co-operation with representatives of the Interstate Commerce Commission, the committee has been considering new classifications covering operating, revenue

and road and equipment accounts, as well as schedules and text for income, profit and loss, and general balance sheet accounts. The committee held two protracted sessions last year with representatives of the commission and worked out the uniform system of accounts prescribed by the commission as effective July 1, 1914. This system, which has already been adopted by interstate electric railways and in many cases by state commissions, is recommended for adoption by the Accountants' Association. The report of the committee concludes with a list of all its past and present members with their respective periods of service.

## COMMITTEE ON BLOCK SIGNALS

The joint committee on block signals of the Engineering and the Transportation & Traffic Associations presented in its report a digest of laws or rulings issued by the various states relative to block signals, a bibliography on signaling, and a summary of installations of block signals made during the year preceding July 1, 1914. A design for a semaphore spectacle casting was submitted for approval by the Engineering Association as standard, as was also a clearance diagram for semaphore signals. A set of rules for operation under trolley contact signals was included, and certain definitions now appearing in the standard block signal rules were revised to make them applicable to the requirements of trolley contact signals. The subject of light signals was discussed at length, and recommendations were made to the effect that, for light signals in high-speed interurban service, a lens of not less than 8⅜-in. diameter should be used and that in moderate-speed service a lens of not less than 5⅜-in. diameter should be used. In an appendix detailed descriptions of two types of automatic train stops were given.

The summary of replies to questions in the data sheet sent out each year by this committee included information as to the contemplated mileage of track to be protected by signals during the coming year and data upon the cost of signal maintenance and the efficiency of signal operation. Condensed data regarding the block signal installations made during the last year were also included. In another appendix the committee presented a study upon braking distance for trains at varying speeds, including a diagram with which any given problem of this nature could be solved by graphical means. Another appendix furnished brief descriptions of installations made by the various signal manufacturers during the last year.

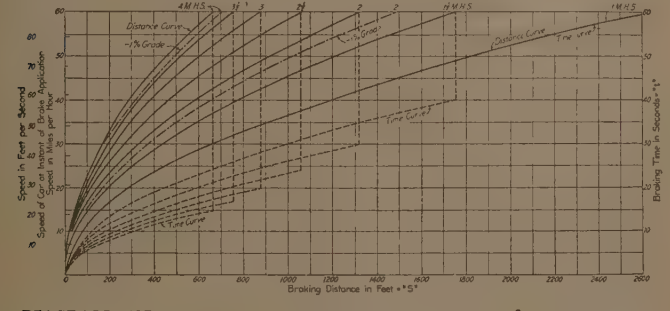


DIAGRAM FOR DETERMINING BRAKING DISTANCES AT VARIOUS SPEEDS

The above-mentioned diagram for determining braking distances at various speeds is shown in the accompanying illustration. To show how the chart is to be used assume that such a braking force has been applied to a car so as to produce a retardation of 3 m.p.h.p.s. It is desired to know how long a time will be required for the car to come to a stop and in what distance it will do so from a speed of say, 50 m.p.h. The solid line for 3 m.p.h.p.s. shows that a speed of 50 m.p.h. corresponds to a braking distance of 600 ft. Directly below this is a point where a vertical line intersects the distance-time curve for 3 m.p.h.p.s. and, reading on the right-hand scale, it is found that the time required for the stop is 16.5 seconds. A similar procedure shows that from 60 m.p.h. the same braking rate will stop the car in twenty seconds and 800 ft. The braking forces necessary to produce the various rates of deceleration are as follows:

| Rotation | Braking force |
|---|---|
| 1 m. p. h. p. s. | 91 lb. per ton |
| 1½ m. p. h. p. s. | 137 lb. per ton |
| 2 m. p. h. p. s. | 182 lb. per ton |
| 2½ m. p. h. p. s. | 227 lb. per ton |
| 3 m. p. h. p. s. | 273 lb. per ton |
| 3½ m. p. h. p. s. | 318 lb. per ton |
| 4 m. p. h. p. s. | 364 lb. per ton |

The forces given above are those which must be applied tangentially at the car-wheel tread, the pressure from the brakeshoe being from four to eight times as great, depending on the coefficient of friction between the brakeshoe and the tire. As the forces are calculated for level track they must be increased 20 lb. per ton for each 1 per cent of upgrade and correspondingly reduced for each 1 per cent of downgrade. Referring to the chart the two dot-and-dash lines show the times and distances resulting from the application of forces on a 1 per cent downgrade which on the level would produce 4 m.p.h.p.s. and 2 m.p.h.p.s. retardation respectively. They are shown merely to give a practical concept of the effect of a familiar grade.

## REPORT OF THE JOINT COMMITTEE ON THE JOINT USE OF POLES

The special committee on the joint use of poles, comprising representation from the American Institute of Electrical Engineers, the National Electric Light Association, the American Telephone & Telegraph Company and the American Electric Railway Association, presented its final report yesterday. It was the unanimous recommendation of the committee except that the telephone companies do not agree to enter into joint use of poles in any case where the voltage exceeds:

(a) 5000 volts constant potential, neither side grounded.

(b) 5000 volts constant current series alternating metallic (except when current does not exceed 7.5 amp, in which case the voltage may be not more than 10,000 volts).

(c) 7500 volts constant direct current series metallic.

(d) 700 volts constant potential, direct current, one side grounded.

The report comprises a form of agreement covering the joint use of wood poles on a rental basis and a set of recommended specifications for the joint use of wood poles. These take up in detail the placing of attachments and wires for various classes of circuits, including railway span wires and brackets. Included with the report are a number of dimensioned diagrams illustrating the principal specifications.

## REPORT OF COMMITTEE ON COMPANY SECTIONS AND INDIVIDUAL MEMBERSHIP

The American Association committee on company sections and individual membership reported yesterday to the effect that two company sections had been organized during the year; the Washington Railway & Electric Company section, No. 4, and the Manila Electric Railway & Light Company section, No. 5. Several companies have taken steps in the direction of organizing sections. Sub-Chairman Martin Schreiber's midwinter convention paper entitled "A Plea for Company Sections" was a part of the year's campaign. (See Electric Railway Journal, Jan. 31, 1914, page 250.) An active and successful campaign for individual members has also been conducted continuously throughout the year.

The public utilities commission was discussing carload lots and less than carload lots, abbreviated to c. l. and l. c. l. Finally one of the commission (so the story runs) inquired: "Where is this C. L. and L. C. L. railroad?"

## REPORT OF COMMITTEE ON COMPANY MEMBERSHIP

The American Association committee on company membership which met yesterday reported that an active canvass of possible members had been made throughout the year and that more than 400 members are now enrolled. These represent more than 80 per cent of the capital invested in the business. The remainder are principally small companies, and the committee reported the opinion that many of these will soon be enrolled. The committee has used a pamphlet, "Applying the Test," and the association year book in correspondence with prospective members.

## REPORT OF THE COMMITTEE ON ACCOUNTING DEFINITIONS

The Accountants' Association committee on accounting definitions which reported yesterday was formed to present for consideration definitions that should promote a standardized use of various terms employed in accounting discussion and literature. The suggestion that such terms be defined arises from the confusing, sometimes misleading, use of words required in accounting. When the committee was asked to give attention to this subject it was with the understanding that the committee on a standard classification of accounts of the associations, then conferring with the Interstate Commerce Commission over the uniform system of accounts, would necessarily define certain terms. So far as terms are defined in the new classification of accounts, agreed upon by the classification committee and the Interstate Commerce Commission, they are of course binding on the Accountants' Association.

While the standard classification is therefore the logical starting point for part of the work of the committee on Accounting Definitions another consideration should be borne in mind. That is that since the standard classification is promulgated by the Interstate Commerce Commission it is the prescribed legal system for carriers which do an interstate business. Its definitions are binding on such carriers.

Similarly, intrastate carriers located in states where commissions have prescribed uniform accounts are bound by the text of those accounts and accompanying definitions. Various state commissions have adopted the Interstate classification, the association classification. Several years before the present classification was issued, however, some of the state commissions had adopted systems that, however little they differ in principle from the standard, contain differences in detail.

For the information of the association the committee showed in an appendix to the report certain definitions which it had compiled. So far as the commission definitions are concerned it does not present these as a full compilation of all of the definitions of all of the commissions. Some of the commissions which have prescribed forms of accounts have not included therein any definitions of terms which are of interest in the work assigned to the committee.

The committee expressed the hope that the compilation may be useful for reference and that it will serve to direct more general attention to the desirability of a uniform use of terms. The definitions quoted were from the uniform classifications of the Interstate Commerce Commission, The New York Public Service Commission, First District, the Board of Public Utility Commissioners of New Jersey, and the Public Service Commission of Maryland. The Century Dictionary and the Board of Supervising Engineers, Chicago Traction are also quoted. The committee realized that all definitions of this kind are somewhat arbitrary, and that a compilation of this character may be extended much further so as to include definitions, especially on the questions raised by public valuation of the property of public

The committee expressed appreciation of the great desirability of a standardized use of terms, and of the fact that the standardized use of terms is somewhat dependent on standardization of the practices underlying the terms which it is desired to define accurately. With the adoption of the new classification of accounts the ideal of complete standardization in electric railway accounts is brought nearer to realization and there will be a corresponding advance in the standardized use of terms. For the realization of this ideal time will be required.

The committee decided to present the data which it secured and to leave the question of future activities to the association or the executive committee. Whether or not it is the desire of the association that independent definitions shall be formulated or adopted, the committee believed that a service can be rendered to the association by the presentation from time to time of rulings or other information that will tend to make accounting terms clearer.

## REPORT OF THE BOARD OF ACCIDENT PREVENTION

At a joint meeting of the Claims, Engineering and Traffic & Transportation Associations held yesterday morning, the board of accident prevention presented the results of an investigation by a sub-committee. These related to practical accident prevention through the employment of physical agents such as equipment, safety devices, ordinances, traffic regulations and laws; and to educational methods designed for the general public, school children and employees and utilizing safety committees, the press, lectures, bulletins, moving pictures and slides. A series of twenty-four questions were addressed to the member companies and thirty-five contributed to the report. As a result the committee reported that practical accident prevention is being accomplished through the use of improved equipment, and of safety devices, and through the education of employees. It urges co-operation with municipal authorities in regard to safety zones, traffic regulation, etc., and emphasizes the duty of state and municipality to educate the public along safety lines. The committee appended to its report a list of the answers to the questions received from the thirty-five co-operating companies.

## REPORT OF THE COMMITTEE ON EDUCATION

The Accountants' Association committee on education reported yesterday morning. The report stated that the enrollments in the correspondence course in electric railway accounting were of sufficient number to assure its establishment. This course is to be conducted by Professor John R. Wildman, of New York University. An outline of the course was printed in the issue of the Electric Railway Journal for May 30, 1914, page 1214. In promulgating this plan the committee sent out two letters describing the course but, desiring to treat the project from a dignified standpoint, after placing the appeal and prospectus of the course before the member companies, the committee sought to develop local interest through personal solicitations.

An analysis of the enrollments indicated that the demand for wider knowledge of the subject through this course lies with the smaller companies. The large corporations did not furnish their expected quota. The committee stated that the successful outcome, apart from the individual efforts of each member of the committee, was largely due to the interest and material assistance given by P. S. Young, treasurer Public Service Railway; H. H. Norris, Electric Railway Journal, and Secretary E. B. Burritt. Particular recognition was given Mr. Burritt for his continued support and services.

The first lecture will be mailed to subscribers on or about Oct. 19, 1914. The prospectus of the course is unchanged from that presented in our previous report. The committee will award a prize of $25 for the best work done on the course during the current year.

# THE ORGANIZATION AND FUNCTIONS OF A VALUATION STAFF

An interesting paper on this subject was presented at the session of the American Association yesterday by H. C. Donecker, assistant general manager Public Service Railway, Newark, N. J. The author first referred and quoted from various authors on the subject, including Henry E. Riggs, who delivered a paper on the valuation of public service corporation property before the American Society of Civil Engineers in January, 1911, from the books of Horatio Foster, Henry Floy and H. P. Gillette, and from magazine articles or reports of J. Shirley Eaton, Professor Pence, and others. He then discusses the organization of a company valuation staff. An abstract of his remarks on this subject follow:

### Organization of a Company Valuation Staff

The advantages of a home organization are apparent, as undoubtedly the members of the various departments who would be required to engage in the work, granted their competency, are, through their greater familiarity with the growth and history of the component parts which go to make up the entity of the operating company, in a position better to determine the real value of the property under their jurisdiction than outsiders without this intimate personal knowledge, could possibly be.

It is not surprising that in actually planning the organization to take care of such work, companies which have utilized the committee plan to good advantage in dealing with other important matters should look with favor on this method of conducting the work. Such a committee would embrace representatives from the accounting, way, equipment, transportation, power, purchasing and legal departments, each member being held responsible for that portion of the work which would logically come under his direction. Regular meetings of the staff would be held at which opportunity would be afforded for a discussion of important problems. Detailed minutes of the proceedings would be kept and periodical progress reports would be submitted to the management.

Although considerable time would probably be consumed in reaching a decision as to governing principles, in outlining distinctly the methods to be followed and in definitely planning the details, yet the work, when once organized, could be carried out more expeditiously than by a corps of experts who must of necessity spend considerable time in drawing upon the fund of information of the company's employees. It must be borne in mind also that in any appraisal by professionals the company must co-operate in no small degree, and the placing of data in their hands entails no trifling expense.

It may be true, also, as has been frequently stated, that departmental heads show comparatively little interest in the work of outside appraisers, with the consequence that there is a lack of understanding as to methods pursued, and the progress of the work not being closely followed dissenting views are not expressed until the final results are presented. Then arise questions as to the conclusions reached, and much effort is subsequently expended to make such corrections, modifications and additions as seem advisable and maybe essential. Such complications would be avoided to a large extent were the work directed by the company's valuation staff.

Of paramount importance is the foundation work connected with appraisals, that is, the inventory itself. Mr. Floy states that "nothing is more important than the inventory." In fact the whole valuation fails if the inventory is not complete and accurate. To make a proper and reliable inventory of a large property involves an amount of detail that will seem unduly laborious with an accompanying unwarranted expense to those inexperienced in appraisal work. Ordinarily it is the most difficult and expensive part of the work and will run from 50 to 75 per cent of the total cost of the appraisal. Under the committee plan of organization each departmental head will naturally assume the responsibility of completing an inventory of his own property. The general methods of conducting an inventory have been given in more or less detail heretofore and, of course, will have been considered by the valuation staff in general conferences before the work is started and while it is in progress.

As an illustration of a concrete instance where a company has itself undertaken the actual details of the work of an inventory of its property, we might quote from R. B. Rifenberick's description of the methods followed in Detroit:

"The track, mechanical and power departments are the ones which would have particularly to do with an inventory, as the physical property is in the direct charge of these departments. * * * Therefore the inventory was divided into the three general headings of inventory, track department; inventory, mechanical department; and inventory, power department, to which I added 'inventory general' to take care of real estate and buildings. * * * I concluded that the men who were in constant every-day connection with the property itself would be more capable than anyone whom I could secure from the outside, as such outside assistance could not possibly be as familiar with the property as must be the men in the regular employ of the company, who had in many cases been with the property for years. I took this subject up with each of the heads of the general departments and had them assign men out of their departments who were most familiar with the different schedules of the property to be inventoried, and they were put to work inventorying every item of physical property that they could ascertain. These men went into every schedule in as great detail as they could and were instructed to be sure and get everything that they could see and to be very careful not to put anything in their inventories that they could not at any time put their hands on and say 'There is that in the inventory'. * * *

"Our experience in this work fully confirms the conclusion I reached before getting up the organization for the purpose of taking the inventory, and I know of no better plan or organization that could be provided. * * *

"After arriving at material and labor cost * * * then should be added: (1) contingency item; (2) incidentals of construction item; (3) employers' and public liability insurance item; (4) builder's risk or casualty insurance; (5) architect's fee; (6) appreciation item; (7) acquiring land item; (8) contractor's profit item."

In addition, Mr. Rifenberick would include in the total reproduction cost overhead charges covering brokerage charge, discount on bonds, development cost, engineering charge, franchise value, going concern value, "hazard" charge, interest during construction charge, legal expense charge, organization and administration charge, promotion charge, taxes during construction charge and working capital charge.

Upon the completion of the inventory, the accounting and engineering departments must confer as to the value to be assigned to the various items. The operating department's knowledge of the present-day value and efficiency of the property also aids materially in reaching a right decision, while the purchasing department is called upon to furnish information as to past prices, details as to the circumstances under which the contracts for materials were made, etc. The accounting department is informed as to any unusual circumstances which may have attended the construction of the particular unit, all of which must be given weight in any equitable determination of its value. Thus no value appears on the inventory which cannot be substantiated by the company's records of cost are upheld by the experience of its engineers.

The legal department must be in close touch with the development of the valuation, and to it is relegated the preparation of evidence to establish a value upon the basis which has been adopted, also the rendering of opinions as

to the value of easements, contracts, franchises and such other intangibles as may be involved.

When the original valuation has been finally completed, the problem of keeping it up to date arises. This means that as soon as any piece of construction is completed, the engineers and accountants must examine all the records of cost of that particular job and correct any errors or improper charging of labor, material or expense. The actual unit costs of the job must be determined and reconciled with previous estimates. Just as careful attention must be given to an accurate determination and record of the amount to be written off in reconstruction work. It is then a comparatively simple matter to bring the completed appraisal, as previously made, up to date each year.

### Problems Before Staff

At the risk of some repetition, we here touch upon some of the practical problems to the proper solution of which the valuation staff, in conference, must give serious consideration. These involve:

1. Permanent inventory records. Where inventories are to be of value to the purchasing department, the operating department, the accounting department, and the valuation staff, the practical problem arises as to the most satisfactory form of inventory to serve such divers uses in a permanent manner.

2. Present-day and cost prices. There have been variations in the unit costs of construction since the company's property has been placed in operation and a study of these changes is essential. If the basis of prices is to be the reasonable cost of construction to the company, the question arises as to whether the company is not entitled in any fair appraisal to the difference between actual unit costs and those normally obtaining because of its superior bargaining ability and economical construction. If the basis of prices is to be the price of duplication, the question as to whether such prices should be present-day or average prices for an arbitrary period, such as the past five years, requires similar study.

3. The increased cost of piecemeal over completed construction. Properties built up part by part have not and could not be built with the same efficiency and economy that would be possible if the entire property were rebuilt, as a whole.

4. The increased cost of construction of property, such as track, while under operation, as compared with new construction without the difficulties of operation.

5. The inter-department charges making up the total cost of labor and material, including the cost of handling materials and stock and its transportation to the construction work, its incurrence while work is in process of construction tion, the cost of obtaining labor, the cost of employee's liability during construction, losses due to inclement weather and sickness, the cost of experimental work, and numerous similar problems, arising out of the diversity of construction conditions.

6. The overhead charges and their application; supervision of material and labor during construction and the inspection of the completed work prior to its being placed in operation.

7. The legal expenses involved during construction and the cost of money tied up in materials and supplies during the period of time which is needed to complete the work.

8. If the appraisal takes into account present, or depreciated, value of the property, the problems arising are numerous and involve the inspection of each unit of equipment and the determination of its remaining value as a part of the entire operating property.

The prime function of a valuation staff is to provide the company with an accurate and up-to-date appraisal, and while we may question the desirability of valuations in themselves, those who have given the subject deep consideration and have actual experience along this line point to certain incidental purposes which a valuation staff may serve. Aside from the features to which reference has already been made, as, for instance, the proper recording of costs, values, etc., involved in the reconstruction of the property as well as in its original installation, another important advantage is said to accrue, namely, the assistance which such a valuation staff can afford the legal department, particularly in cases where the question of reasonable return is involved.

It would also seem to be fair to assume that the contact of each department with every other as afforded by the committee form of valuation staff organization, is certain not only to broaden the viewpoint and make the employee of greater value to the company itself, but also to result in greater reliability of records where such a committee performs conscientiously its proper functions in checks and balances before the final figure enters into the property account of the company.

In conclusion, we reiterate the statement made early in this discussion, that we are facing definite conditions and not untried theories, in substantiation of which it might be well to call attention to an order of the Railroad Commission of the State of California that the electric railways within its jurisdiction file within 120 days inventory and appraisals of the cost and value of their property.

Finally, let it be understood that the object of this paper is not to provide an argument on the subject of valuation, but merely to cite certain attendant conditions of which the writer has some knowledge. There is, and perhaps always will be, honest differences of opinion as to the ultimate benefits to be derived from the application of the valuation theory.

## ELEVATED RAILWAY TRAFFIC IN NEW YORK

The Public Service Commission of the First District of New York has just published the results of the operations of the four elevated lines of Manhattan and the Bronx for the year ending June 30, 1914. From this it appears that, although there was a considerable decrease on the Sixth Avenue line, there was, on the whole, an increase of 4,626,562 passengers carried for the year, and that the total number of passengers carried on the elevated lines during the year was 311,473,568. With these figures may be compared the record made by the subway for the same period. It carried 340,413,103 passengers, or 1,001,215 a day, which means that the Interborough system is used every day of the year by 1,917,315 passengers, or 651,886,671 in the year, counting 340 days to the year. Taking the four elevated lines separately, the Third Avenue carried 4,260,856 more passengers in 1914 than in 1913, a daily increase of 12,532, almost three times as heavy an increase as that of the preceding twelve months. The Sixth Avenue carried 497,248 fewer passengers than in 1913, and its record of 255,173 passengers a day was not only 1463 less than in 1913, but 721 less than in 1912. Both the Second Avenue and the Ninth Avenue lines gained moderately last year, the former scoring a 595,660 and the latter a 269,294 increase total over the preceding twelve months.

A red band or signal, which can be displayed diagonally across the illuminated route number on the front of the car, is being installed by the Philadelphia Rapid Transit Company to indicate when a car is destined to turn "short" of the usual run or is scheduled to go into a depot before reaching the end of the line. The cars of Routes 20, 21 and 53 have been equipped with this red band. The red band can be dropped into place by the motorman for the purpose of calling the attention of prospective passengers to the fact that the car is carrying a "short" destination sign immediately beneath the route number so that passengers may avoid boarding a car which is designated to turn before reaching the through terminal. If the new device proves to be a convenience to the traveling public it will be installed on all cars having the illuminated sign system.

# REPORT OF THE SECRETARY-TREASURER OF THE AMERICAN ASSOCIATION *

The question of membership is always a vital one, and it is a pleasure to state that the growth of the association in this respect has been steady. We are slowly, but surely, gathering into the fold those companies which yet remain outside. It is interesting to note that our organizaion includes 36,000 of the 43,000 miles of electric railways in the United States and that of the $533,000,000 in revenues received by the companies in 1913, $500,000,000 were received by our member companies. This indicates that the association is truly representative of the electric railway industry of this country.

The individual membership has increased during the past year in a very satisfactory manner. This branch of membership is a potent factor for good and the recruiting should be aided in every possible way by every individual connected with the organization. The individual members should number many thousands.

The company section movement continues to spread. Two new sections were formed during the year, the Washington Railway & Electric Company section and the Manila Electric Railway & Light Company section, and two others are in process of formation. The organization of company sections should be encouraged as a sure means of increasing this membership. The value of the company section is difficult to overestimate. Each of our larger member companies should have a section among its employees, and executives of these companies should lend their support to the movement.

The value of the association magazine, *Aera*, has been thoroughly demonstrated. Its circulation has increased with the increase in membership, and it is maintaining a standard befitting the official organ of this association. Mention should be made of the publicity work which is being accomplished through the magazine. Newspapers to the number of 1196 are supplied each month with clippings from *Aera*. By this means much enlightening information relative to the operation of electric railways is published throughout the country and the effect cannot help but be beneficial.

A noteworthy step was taken during the year in the establishment of the Bureau of Fare Research under the direction of the committee on cost of passenger transportation service. F. W. Doolittle was selected by the committee as the bureau's director and took charge some five months ago. He is eminently well qualified for the important work devolving upon the bureau.

The new method of distributing the proceedings, as author-

## CASH STATEMENT

### Receipts

(Fiscal year ended Sept. 30, 1914)

| | | |
|---|---|---|
| Cash in bank, Oct. 1, 1913 | | $5,012 |
| Admission fees | $230 | |
| Company annual dues | 38,328 | |
| Individual membership dues | 13,810 | |
| Interest on bank deposits | 369 | |
| Sale of annual reports | 330 | |
| Sale of rule books | 322 | |
| Sale of classifications | 82 | |
| Sale of pamphlets | 24 | |
| Sale of membership emblems | 458 | |
| Index bureau | 1,531 | |
| Miscellaneous | 435 | |
| *Aera* advertisements and cuts | 6,367 | |
| *Aera* subscriptions | 241 | |
| Sale of *Aera* binders | 75 | |
| Manufacturers' Association contribution to support of *Aera* | 5,970 | |
| Sale of Engineering Manual and binder | 519 | |
| Contribution to fare bureau | 1,000 | |
| Refund of petty cash | 600 | |
| Proportional share of convention reporting from Electric Railway Journal | 344 | |
| Checks redeposited | 114 | |
| Receipts during fiscal year ended Sept. 30, 1914 | | 71,156 |
| Total cash, including balance of Oct. 1, 1913 | | $76,168 |

### Expenditures

(Fiscal year ended Sept. 30, 1914)

| | |
|---|---|
| Salaries | $12,362 |
| Printing and stationery | 2,976 |
| Postage | 1,807 |
| Miscellaneous office expenses | 490 |
| Rent of office | 3,073 |
| Telephone, telegraph and messengers | 690 |
| Express, freight and cartage | 1,286 |
| Traveling expenses, secretary | 254 |
| Traveling expenses, executive committee | 37 |
| Traveling expenses, other committees | 1,346 |
| Miscellaneous general expenses | 2,085 |
| 1913 convention | 996 |
| 1914 convention | 95 |
| Publicity for 1913 Convention | 200 |
| Annual report | 2,724 |
| Return of active membership dues | 75 |
| Return of individual membership dues | 85 |
| Furniture and equipment | 459 |
| Exchange | 52 |
| Accountants' Association, annual report | 1,071 |
| Accountants' Association, other expenses | 1,705 |
| Engineering Association, annual report | 5,066 |
| Engineering Association, other expenses | 3,531 |
| Claims Association, annual report | 906 |
| Claims Association, other expenses | 903 |
| Transportation & Traffic Association, annual report | 2,427 |
| Transportation & Traffic Association, other expenses | 1,437 |
| Petty cash fund | 600 |
| Index bureau | 779 |
| Washington Representative | 491 |
| *Aera* | 14,594 |
| Fare bureau | 2,433 |
| Badges | 265 |
| Money refunded later | 174 |
| Engineering Manual and binder | 3,217 |
| Checks returned from bank | 115 |
| Gold medal | 171 |
| Total expenditures, fiscal year ended Sept. 30, 1914 | $70,993 |

### Recapitulation

| | | |
|---|---|---|
| Cash on hand Oct. 1, 1913 | $5,012 | |
| Receipts during fiscal year ended Sept. 30, 1914 | 71,156 | |
| Total cash | | $76,168 |
| Expenditures during fiscal year ended Sept. 30, 1914 | | 70,993 |
| Balance in bank Sept. 30, 1914 | | $5,175 |
| Bills receivable Sept. 30, 1914: | | |
| Contributions to fare bureau | $1,000 | |
| Outstanding company and individual membership dues | 250 | |
| *Aera* advertising | 850 | |
| Convention receipts (estimated) | 6,000 | |
| | | 8,100 |
| | | $13,275 |
| Bills payable Sept. 30, 1914 | | 8,006 |
| Balance as of Sept. 30, 1914 | | $5,269 |

[Statements were added from the Security Bank, New York, verifying the bank statement submitted, and from M. R. Boylan, general auditor Public Service Railway, Newark, N. J., as auditing the report and finding it correct.]

### Recapitulation of Company Members
Sept. 30, 1914

| | | |
|---|---|---|
| Company members Oct. 1, 1913 | | 391 |
| Resigned | 15 | |
| Consolidated | 5 | |
| Delinquent | 12 | |
| | | 32 |
| Total 1913 company members in good standing | | 359 |
| Company members reinstated during fiscal year ended Sept. 30, 1914 | | 2 |
| Total old company members in good standing Oct. 1, 1914 | | 361 |
| New company members admitted during the year ended Sept. 30, 1914 | 23 | |
| Delinquent | 4 | |
| Resigned | 1 | |
| | 5 | |
| New company members in good standing Sept. 30, 1914 | | 18 |
| Total company members in good standing Sept. 30, 1914 | | 379 |

### Recapitulation of Individual Members
Sept. 30, 1914

| | | |
|---|---|---|
| Individual members, Oct. 1, 1913 | | 2,885 |
| Resigned | 598 | |
| Deceased | 22 | |
| Delinquent | 265 | |
| Membership cancelled owing to individual's affiliation with non-member companies | 98 | |
| | | 884 |
| Total old members in good standing Sept. 30, 1914 | | 2,001 |
| Individual members reinstated during fiscal year | 10 | |
| Delinquent | 4 | |
| Withdrawn | 2 | |
| | 6 | |
| Total reinstated members in good standing Sept. 30, 1914 | | 4 |
| Total 1913 members in good standing Sept. 30, 1914 | | 2,005 |
| New individual members | | 893 |
| Total individual membership Sept. 30, 1914 | | 2,898 |

* Abstract of report for the fiscal year ended Sept. 30, 1914, presented at the meeting of the American Association, Atlantic City, N. J., Oct. 13, 1914.

ized by the executive committee was put into operation for the first time this year. This plan has resulted in a considerable saving in the cost of printing and express charges, the total amount saved over last year being approximately $1,500.

Another innovation this year was the association's Year Book. In this is presented in convenient form a great deal of information bearing on the organization and work of the association.

Still another departure; and a very important one in its value to the members of the association, was the publication of the Engineering Manual. This book contains all standards and recommendations adopted to date, together with much other important information. It has been favorably received and its usefulness to the electric railway man is established.

The bureau of information has at times this year been heavily taxed and it has been difficult to keep up with the many requests for information of one sort or another. There were received during the year about 325 requests for information on a large variety of subjects, which received attention at the hands of the bureau. It is satisfactory to note that this important feature of association work is being taken advantage of by a constantly increasing number of member companies. It is appropriate to acknowledge here the active co-operation on the part of member companies in the supplying of data in connection with the work of this bureau.

During the past year eighty-four committee meetings were held. Co-operation of our companies has likewise been given freely in response to requests for information from various committees in the course of their work.

I desire to express my earnest appreciation of the loyal support accorded me by the members of our office force. They have been at all times faithful to the association's work.

I also wish to express my appreciation of the assistance which has been extended to me during the year by my predecessor, H. C. Donecker, and of the whole-hearted support accorded me by the membership generally.

## UNIVERSAL STANDARD BOILER SPECIFICATIONS

During the month of September the committee appointed by the American Society of Mechanical Engineers to prepare specifications for the construction and care of steam boilers held several meetings for the purpose of bringing out discussion on a proposed draft for the specification. Mention of the first of these meetings, which was held Sept. 15, was made in the Electric Railway Journal for Sept. 5. At this hearing numerous representative users of steam boilers spoke in favor of the general adoption of a single standard boiler code, and this attitude was heartily concurred in by representatives of the Babcock & Wilcox Company, the National Tubular Boiler Manufacturers' Association, the American Boiler Manufacturers' Association, and the National Association of Steam & Hot Water Fitters.

The technical part of the hearing was opened with a general discussion on the proposed code with special reference to the matters of license and inspection laws. A discussion upon safety valves occupied a considerable portion of the afternoon but this was finally discontinued to enable a delegation from the National Association of Thresher Manufacturers to be heard. Following this, a committee of the American Society of Heating and Ventilating Engineers was heard, and then the meeting was thrown open to the discussion of the question of boiler material. This discussion was continued without recess until the adjournment at 8.30 p. m.

A committee composed of the representatives of the American Boiler Manufacturers' Association and the National Tubular Boiler Manufacturers' Association conducted a private meeting that lasted throughout the day of Sept. 16. In this the preliminary report was discussed from all standpoints and very carefully considered for its application to the boiler manufacturing industry. The result of their work was a comment on the specification for boiler material suggested by the Association of American Steel Manufacturers, some further criticism of the details of the report and finally the formation of a permanent organization for the purpose of taking definite action for the introduction of the code, after its acceptance by the society, into the legislatures of the various states. This meeting was finally adjourned until Tuesday, Sept. 29, on which date a general meeting of boiler manufacturers was called at Pittsburgh, Pa., for the purpose of furthering the work initiated in New York.

On Sept. 26 the committee representing the boiler-tube interests met in a second conference with the boiler specifications committee and presented a complete specification that is proposed for boiler tubes, both lap-welded and seamless. A representative of the National Association of Master Steam and Hot Water Fitters appeared before the committee and expressed the approval of that association of the committee's work and particularly the changes recommended by the National Boiler & Radiator Manufacturers' Association and the American Society of Heating & Ventilating Engineers. Following this, conferences were held with representatives of the railroad associations and the safety valve manufacturers, both of which were, however, adjourned to later dates at which specific recommendations yet to be formulated will be presented.

## BERLIN TRAFFIC LOSSES ON ACCOUNT OF WAR

That the effect of the war is beginning to make itself felt in Germany is shown by the August statements of the Berlin rapid transit and surface companies. The Berlin Elevated & Underground Railway Company (exclusive of the Schöneberg, Wilmersdorf and Dahlem municipal leased lines) carried 4,951,792 passengers in August of this year, compared with 5,610,011 for the same month in 1913. There was a corresponding reduction in revenue during the month from $184,993 to $160,541. This company recently turned over to the army sixty auto buses which it had just purchased for feeder service.

The August revenue of the Allgemeine Berlin Omnibus Company decreased from $276,294 to $213,540. One reason for the reduction is that the number of vehicles was cut down two-thirds because many buses and horses were taken for war purposes.

The report of the Grosse Berliner Strassenbahn shows a loss of about $75,000 compared with August, 1913, when the earnings were $913,849. The company not only lost a large number of regular riders but made a further sacrifice in voluntarily refunding credits for the unexpired commutation of all patrons called to the colors. Immediately after mobilization many women from the families of employees took their places, but this condition was temporary as men are now being trained to enter the service at regular wages.

The annual report of the Singapore Electric Tramways & Power Company for 1913 presents "for the first time a balance on the right side," the year's profits having been $45,672. The tramway has 15 miles of track, and carried more than 16,00,000 passengers last year, an increase of nearly 2,200,000 over the previous year. Receipts per car-mile were 19 cents in 1913, against 17 cents in 1912. No dividend was paid, the concern having purchased at various discounts $260,843 of its own debentures, of which $163,513 have been canceled and $97,330 kept alive and carried as a credit. The capital now stands at $486,650. The chairman states that the company anticipates starting annual dividends next year.

## HISTORICAL NOTES ON HORSE AND ELECTRIC CAR SERVICE IN ATLANTIC CITY

By George F. Faber, General Superintendent Atlantic City & Shore Railroad.

In view of the description of the new shops of the Atlantic City & Shore Railroad printed in the issue of the Electric Railway Journal for Oct. 10, the following historical notes may prove of interest.

The Camden & Atlantic Railroad Company was organized on June 24, 1852, and the construction of a railroad between Camden and the shore was begun a few weeks later. Tracks were laid on Atlantic Avenue in 1854. About 1865 two brothers secured from the railroad company the right to run cars on this avenue from the Inlet to South Carolina Avenue. The equipment comprised two cars and four horses, the owners acting as driver and conductor. After a short time their lease was taken over by another individual, but in 1869 the railroad refused to continue the lease and since that year has been operating the line.

In 1869 the Atlantic City Horse Car & Railway Company was organized and, after much difficulty, secured from the City Council the right to construct a line from a point on New Hampshire Avenue near the Inlet, in the center of that avenue to Atlantic Avenue, thence to Ohio Avenue, thence on Ohio Avenue to Pacific Avenue and on Pacific Avenue to the Excursion House at the foot of Missouri Avenue; also, from the intersection of Michigan and Pacific Avenues, via Michigan and Atlantic Avenues to Ohio Avenue, joining the other track at that point. The Camden & Atlantic Railroad, however, secured an injunction and stopped the construction on Atlantic Avenue and put an end to the enterprise excepting that the organization was continued.

In 1889 the electric trolley system was introduced and four years later the line was extended to Longport. Experiments with electric heating on the Burton system were begun in 1892, and the present, now known as the Consolidated, system was installed on a small scale in 1895 and completely in 1898.

The next venture in traction lines was the Atlantic City & Suburban Traction Company, organized in 1902 with a 33-year franchise. The company has a single track extending from the foot of Florida Avenue to the bridge across the Thoroughfare at Georgia Avenue, and thence across the Meadows to Pleasantville, Somer's Point and Absecon. Service on this line commenced in 1903.

The Central Passenger Railway Company secured a franchise for tracks on Virginia, Adriatic and South Carolina Avenues in 1903. After being held up by injunction the construction was completed on the first-named avenue only and the first car was operated the following year. It was planned to use the Pullen underground contact system on this line.

The above statements bring this historical sketch down to the year 1904. The more recent developments were covered in the Electric Railway Journal article already referred to. The property is now owned or controlled by the Pennsylvania Railroad through the West Jersey & Seashore Railroad, the direct owner of the larger portion of the property. The system is operated by the Atlantic City & Shore Railroad, which leases the rights of other companies having franchises and physical property in the city and immediate vicinity. The organization of the underlying companies are, however, maintained intact.

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C. N. Duffy, vice-president and general manager Manila Electric Railroad & Light Company, was chairman of the arrangement committee at a reception given to Rev. J. J. Harty, archbishop of Manila, upon his return to the Philippine Islands on Aug. 3. The speakers at the reception included Governor General, Francis Burton Harrison and the Mayor of Manila.

## BRILL'S LOW LEVEL HIGH-LIFE CARS ON RADIAL TRUCKS

The J. G. Brill Company is exhibiting one of the Third Avenue Railway Company's splendid low-level cars on the Boardwalk opposite the Pier, and electric railway men who want to see what conveniences can be incorporated in the once-despised "single-trucker" should not fail to go over it. Although this car is but 22 ft. 11½ in. over the corner posts and 34 ft. 11¾ in. over the buffers, it has a seating capacity of 46; thirty-seven passengers are accommodated in the body and nine on the platforms. There are no steps to the platforms as the height from pavement to patform is only 13 in.; from the platform to the car floor is 10½ in., and the floor of the car has a ramp of 3 in. in 5 ft. 1½ in. from the sill at each end. The car has a steel bottom frame and continuous steel posts; the sides are convertible, the arrangement being the "Third Avenue convertible system," which consists of panels with sashes interchangeable with wire screens.

The car is mounted on the Brill "Radiax" type of truck, which has a 10 ft. wheelbase and 24 in. wheels. The weight of the body, less electrical equipment, is 12,840 lb.; weight of truck, with two gears, 6140 lb.; the weight per seated passenger is 522 lb., and by lengthening the car 2 ft. 5 in., or one window, the weight per seated passenger will be 500 lb. The Brill Company has built forty-nine of these cars in two orders, all being mounted on "Radiax" trucks. A "Radiax" truck of 11 ft. 6 in. wheelbase is exhibited in the company's space on the pier.

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## SOME CONSOLIDATED LEADERS

The thermostat cabinets shown in operation by the Consolidated Car-Heating Company at space No. 22 demonstrated by graphic recording thermometer charts and by current consumption clocks the accuracy of temperature regulation and the economy in electric current which is effected by the use of this device. The thermostat employs the "Sylphon" flexible metallic bellows and is operated by the expansion of a liquid against atmospheric pressure. Break-down tests on both the thermostat and the magnetic switch controlled by the former show that they will operate more than 200,000 times without showing appreciable wear.

The electric heater features include the all-steel, lightweight construction with glazed porcelain, ventilated spindle for the coils which are made of the company's new noncorrosive wire "Nokoro." Fahnestock connectors for simplifying the wiring of the heaters are also employed. The company also shows an electric ventilating heater in which the outside air is blown by means of a fan over the resistance coils, and after being heated in this manner is distributed by means of a ventilating duct extending along the truss plank of the car. Another exhibit is a coal-burning type of ventilating unit. This heater is said to have absolutely no joints in the fire pot, the heater dome or the smoke jack nipple to permit the escape of coal gas. Fresh air to be heated is taken in by the fan either from the side or from the roof of the car, thus doing away with the objection of dust and odors which are drawn in when the air is taken through a hole in the car floor. The proportion of outside air can be regulated by a special damper according to temperature conditions.

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One of the electric emergency trucks which the General Vehicle Company has supplied to both the New York and Third Avenue Railways has been installed for direct inspection at space 603 in company with ont of the company's 6-ft. industrial trucks. An idea of the various uses which an electric railway can make of the electric vehicle truck is obtainable from the company's reprint of the Electric Railway Journal's article of Sept. 5, 1914, on "Electric Motor Trucks for New York Railways."

## THE LORAIN SWITCH THAT MISSED BRUSSELS

Probably the most interesting feature of the Lorain Steel Company's exhibit is a solid manganese steel tongue switch which was to have been a part of an order made for Brussels, Belgium. A portion of this order has gone forward, the exhibit being one of the pieces which could not be shipped on account of the European war. The design of this tongue provides a narrow tread which corresponds to a standard split switch. All the gage lines are straight, which is quite unusual in tongue-switch design. The tongue is of the tadpole type standard with this company. Recently however, certain parts of the tadpole design have been improved, particularly the holding-down device at the heel. Heretofore a special bronze bolt has been used for this purpose. In the improved device an ordinary track bolt has been substituted for the special bolt. While the bronze bolt was satisfactory it was too tempting as junk, which resulted in the removal of many of them from the piece in shipment. Slight changes have also been made in the tadpole switch lever and a yoke adjustment has also been applied. All of these improvements are shown and may be applied to any switch of the tadpole pattern now in use. One switch shown is equipped with a self-locking ground-throw mechanism which is provided with a spring to permit trailing movement. For the first time this company is showing the new 9 in. 134-lb. girder trilby section with the 150-lb guard, also a 7-in. 122-lb. girder trilby section with the 140-lb. guard as recently adopted by the American Electric Railway Engineering Association.

## REMARKABLE TEST OF DOOR OPERATOR

At space 22 the Consolidated Car-Heating Company is continuing the breakdown test on its door operator. At the close of last year's convention the operator had performed 250,000 complete cycles of operation with no attention whatever. Then the exhibit was boxed, and this year the identical machine with no alterations, repairs or changes in any parts whatsoever, with the exception of lubricating the leather packing, is continuing this test. The remarkable feature is the small amount of wear shown by the machine. This fact, however, is explained by the company as being due to the babbitted crossheads and to the small bore, long stroke design of the door engine which gives an exceptional ease and flexibility of operation.

Various other types of door operators, especially the single-tube type which is being installed on the cars of the New York Municipal Railway, are also shown in operation in addition to a new type magnetic air valve employing needle valves instead of the rotary principle. These valves are unusually efficient, and will operate on as low as 9 electrical watts. Push-button switches for controlling the opening and closing of car doors are also shown.

## WESTERN ELECTRIC HEADLIGHTS AND TELEPHONE DISPATCHING SYSTEM

The Western Electric Company is exhibiting for the first time at this convention the "Melobeam" headlight adapted for all classes of electric railway service. This headlight consists of a cast-iron frame fitted with a dustproof hinged door in which is fitted two lenses. The outer or front lens is of special construction and is known as the Spreadlite semaphore type which throws a wide beam of light across the tracks, enabling the motorman to see objects at a greater distance on either side. The inner lens, or doublet, is of amber colored Noglare glass which extracts all the violet rays from the light, thus removing the objectionable feature of white light when used in foggy or misty weather. A small spherical silvered glass reflector approximately 4 in. in diameter is set in the back of the case. The lamp socket of this headlight can be adjusted to bring the light center of any 23 to 100-watt concentrated filament Mazda lamp or any 23-watt to 56-watt regular Mazda lamp to the focal point of the reflectors. Several other types of standard arc headlights are also shown.

The company also exhibits this year a telephone dispatching system adapted for use on interurban lines. This system requires but one pair of wires for its operation and enables the dispatcher to call selectively any station along the line without ringing any of the others. At sidings or where no attendant is stationed there is a semaphore which automatically sets at danger as soon as the proper call is sent out over the line by the dispatcher and remains in that position until reset by the car crew after talking with the dispatcher.

Other exhibits are telephones and switchboards, composition and porcelain insulators, trolley wheels, bushings and harps insulating tapes and splicing compounds, line material, poles, car buzzers, fuses, Orangeburg fiber conduit and vacuum cleaners.

## NATIONAL TUBE COMPANY SHOWS PANAMA-PACIFIC EXPOSITION STUNTS

The National Tube Company is exhibiting at spaces 554-557 a novel suite of furniture made of Shelby seamless tubing. This furniture, which has been made up for use at the Panama-Pacific Exposition, consists of one settee, one table and six chairs. These, together with the famous Shelby table top, impress every spectator with the variety of uses to which Shelby seamless tubing is adapted. Another exhibit for the Panama-Pacific Exposition is a rack of sectional specimens of Shelby trolley poles. Mounted on this is a complete trolley pole, including base, etc., and the tension is shown on a dial scale. This exhibit is attracting much favorable attention.

Living up to its reputation for exhibiting curious specimens of "National" products as taken from actual service the company is displaying several lengths of 8¼-in. "National" casing telescoped one within the other. This peculiar sample was obtained when a 1600-ft. string of this casing slipped from the elevators in an oil well and fell 200 feet to bedrock. The impact was terrific and resulted in three lengths of the same size casing telescoping one within the other. There is no trace of buckling nor opening at the weld. Aside from being a freak it is a remarkable demonstration of the quality of the steel used in "National" casing.

## ADDITIONS TO THE LIST OF EXHIBITS

Acme Supply Company, Chicago, Ill., spaces 582, 583. Crown and Gem curtain fixtures, brass window sash, sash locks, Duplex weatherproof windows, Kass safety step treads, Regal revolving or hinged shade boxes, Chanarch steel flooring, friction roller curtains, safety step box, steel car doors, Acme weather stripping. Represented by Stanley W. Midgley, Roy C. Munro, John T. Morton.

Railway Materials Company, Chicago, Ill. Brakeshoes, Rymco high-speed automatic trolley switch. Represented by G. F. Allen, E. C. Folsom, I. B. Lesh.

National Carbon Company, Cleveland, Ohio, space 326. Fifty-four different grades of carbon brushes, carbon-graphite brushes, graphite brushes and metal-graphite brushes. Carbon of various types for headlights, flaming arcs, arc welding, etc., Duplex, multiple and other types of dry cells. Represented by F. D. Kathe, O. T. Weaver, E. H. Martindale.

The new attraction at spaces 376 and 379, the convention home of the Peter Smith Heater Company, is its new No. 1-S-C. magazine heater. This heater has been developed to meet the needs of interurban service, having a magazine of sufficient capacity to hold coal for a day's run. This heater will occupy floor space 22½ in. square, weighs 555 lb. and will heat cars ranging in length from 32 ft. to 45 ft.

## NEW ACME SUPPLY PRODUCTS

Quite a number of new devices have been developed and are now on exhibit in spaces 582 and 583, where the Acme Supply Company and the Transportation Utilities Company are located. Among the newest features are the Crown and Gem curtain fixtures. The Acme Supply Company recently has gone into the business of curtain fixtures, including a pinch handle or compression curtain fixture and the Regal revolving or hinged shade boxes for side window curtains. The shade boxes permit free adjustment or curtain replacement and facilitate cleaning. They are made in two styles, a plain one for street cars and an ornamental box for interurban cars.

A light-weight and efficient type of safety step tread, known as the Kass safety step tread, is also shown. This is a punched steel tread which may be manufactured in any gage or shape. In fact, in may be formed to eliminate wooden treads, and at the same time is much lighter than other treads now in use. Other steel pressings shown are several styles of one-piece all-steel doors which were manufactured for the New York Municipal all-steel cars. The well-known Acme brass sash, which is now being generally used in all-steel car construction, is prominently displayed.

## NEW MAYARI STEEL SERVICE TESTS

To demonstrate the extraordinary fiber stress values of Mayari steel the Pennsylvania Steel Company and the Maryland Steel Company are exhibiting this product under various serviceability tests. An 80-lb. A. S. C. E. rail-bound manganese steel center frog, bolted with Mayari chrome-nickel steel bolts which have been given a severe service test, is the center of attraction. This frog was installed in the yard of the company. As a draft of ingot cars was being taken through the turnout of which the frog was a part, a hook attached to a chain which was dragging along the track engaged one of the rail arms and bent it to an angle of 90 deg. The bolts held firm and no indication of fracture under this severe test appeared although the rail broke.

A vibratory testing machine employed to show the toughness of heat-treated Mayari steel under alternate stress or fatigue tests is also on exhibition. This alternate stress condition exists in the track bolts, in joints and connections, hence a very high elastic limit is desired. Heat-treated Mayari steel bolts in rail joints and frogs give the high elastic limit of 75,000 lb. per square inch.

Another feature in this exhibit is a test of a Mayari steel bolt under continuous tensile stress. For the purpose of the test a 1-in. bolt has been turned down to 5-32-in. diameter and then loaded with 2300 lb. of pig iron. This bolt was put under this test at the National Railway Appliances Association exhibition in Chicago last March and is shown again here without any evidence of elongation or that it has approximated its elastic limit.

## EVER-SHARP STELLITE CUTTING TOOLS

Probably the most wonderful achievement of recent times in the metallurgical art is being shown by the Midvale Steel Company, and is known as Stellite. This wonderful new cutting metal which is not steel but an alloy of rare elements, contains characteristics which are revolutionizing machine-shop practice. Primarily it is intended to increase machine tool capacity or cutting speed 50 to 300 per cent. Its chief characteristic is abrasive hardness, and it is largely used as a cutting tool in lathes, since it is not adapted to planers or work which is subject to shock. Cutting tools made of Stellite are especially adapted in turning down commutators, since they may be run at extremely high speeds and do not require grinding. In an actual test a high-speed steel tool had to be ground after turning one commutator. A Stellite tool doing similar work turned four commutators without grinding, and at the close of the operation was in good condition. Moreover, this was true after the Stellite tool had run at a speed three times greater than had ever been attained in the shop where the test was made. A peculiar characteristic of this metal is that it has no temper and is cast in different shapes, namely, flats, squares and rounds, and ground to finish.

## THE CARNEGIE EXHIBIT

In addition to the Carnegie Steel Company's exhibit of steel products it is showing special materials which are of vital interest to the street railway fraternity. It is making a special joint tie which is a combination of standard steel cross-tie sections fabricated in such a manner as to make a firm structure immediately under the joint. It is displaying a tie of this character to be used with concrete construction as well as ballasted construction, the only difference being the weight of the section which enters into its make-up. The company has specimen ties section M 28 weighing 28 lb. per foot, both insulated and non-insulated, similar to that being tested on the Pennsylvania Railroad. A new product in the shape of the Braddock insulated joint is being shown for the first time. Hanging in the space facing the Boardwalk is a very interesting set of photographs illustrating a special machine designed by Charles H. Clark of the Cleveland Railways for tearing up pavement preparatory to reconstruction. The carhouse name of this machine is a "rooter." Its record is 4500 ft. of pavement removed in twenty-eight minutes by four men, some "pork." This track was afterward laid with Carnegie steel cross-ties.

Rolled steel blanks from which motor gears are cut are also an interesting feature of the Carnegie exhibit. These blanks were brought out to replace castings which, owing to their nature, are not of sufficient strength and reliability to be used with the high-powered motors of to-day. The rolled steel blanks on exhibit are made from an ingot 22 in. x 22 in. and about 7 ft. long. The ingot is first rolled into a round of about 15-in. diameter, giving a reduction in the first mechanical treatment of about 60 per cent. After sufficient discard has been made to insure freedom from piping and undue segregation, this cylindrical bloom is cut into discs of the proper weight to produce the blank desired and is rolled in the same general way as a steel wheel into the blanks shown. The advantages of rolled steel gears are that they contain no hidden blow holes and that the metal has a fine grain owing to its mechanical treatment. The teeth on a finished gear are on the periphery of the disk so that there is very little variation of strength. Rolled gears are used almost exclusively on 75-hp motors and larger, and for difficult service are destined to replace castings.

This year the Railway Improvement Company is attracting considerable attention with its "Rico" terminal clock, which meets a long-felt requirement of modern railroading. This clock is installed at terminals or time points along the line and serves as a conductor's standard clock and at the same time gives an accurate printed record of the running time at these time points. In conjunction with this clock each motorman uses a daily card or envelope on which he automatically records his arrival and leaving time at all time points. These clocks are now in use on the Interborough Rapid Transit Company's lines, where the running time record envelope has been substituted for the daily time card. Another argument in favor of this clock is that on interurban lines it serves as a check on motormen who are inclined to turn back without going to the extreme end of the line. It is also asserted that to a great extent it eliminates the tendency to disregard orders for lay-over. This company is also exhibiting several types of its well-known Hedley anti-climbers and "Rico" sanitary straps.

## IMPORTANCE OF BRAKE CYLINDER PISTON TRAVEL

Have you seen the machine gun in the Westinghouse booth? An exhibit of striking similarity in appearance to a rapid-fire machine gun is being shown by the Westinghouse Traction Brake Company to demonstrate the saving in operating expenses and improving the handling of cars in making stops, by insuring a proper and automatically adjusted piston travel.

The reasons why an efficient slack adjuster should be applied to every car are summed up in the following statements among others:

Prevents power being consumed by dragging brakeshoes.

Does away with shoe wear caused by shoes dragging upon the wheels.

Makes possible longer coasting periods, because brakeshoes clear the wheels.

Permits a higher schedule speed because of the decreased energy consumption.

Prevents loss of brakes on account of piston striking the cylinder head.

Saves time in making a stop.

Insures that the brakes will be promptly responsive to the motorman's intention.

Shortens the distance required for a stop.

Makes possible a higher maximum speed because a shorter stop can be secured.

Reduces the skill required of the motorman because of the uniform brake action.

When several cars are operated together, insures that all will be retarded uniformly.

Finally, proper piston travel is expensive and difficult to obtain. By means of the slack adjuster, it is obtained automatically, and in addition, the cost of maintenance and inspection is reduced, the trouble and annoyance resulting from improper slack adjustment are eliminated and the revenue car-miles made by the car between repair periods are increased.

## A "SAFETY FIRST" SLIDING DOOR

The Prepayment Car Sales Company, in space 414, has on exhibit a sliding door that embodies several interesting features. It is designed to be used as a center door for interurban subway or elevated cars, although it can be used to equally good advantage at any point where a sliding door is desired. The door is equipped with the latest type pneumatic engine with electrically-controlled valve. All working parts of the engine are fully inclosed and packed with lubricant, which gives a splash lubrication during the operation of the door.

One of the most interesting features is the "safety shoe" which is mounted on the forward edge of the door. By means of this shoe the door can be closed on a crowd of children without danger of catching and hurting them. As soon as the shoe touches an obstruction it collapses on the door, reversing the operating air in the engine to make the door recede from the obstruction. As soon as the door is clear the shoe falls into place and the door again moves in a closing direction. If the obstruction has been moved the door closes at its normal speed. If the obstruction is still in the doorway the door again recedes. This is repeated until the doorway is clear to permit the door to close with safety. The advantage of this feature can be readily seen when it is borne in mind that usually the man operating the door is half a car length away from it. During rush hours it is generally found necessary to place a platform man at the center doors to assist passengers into the cars. Arrangements are provided whereby the platform man can close and lock the door by hand when the passengers are aboard.

## ARMATURE BANDING MACHINE A FEATURE OF ELECTRIC SERVICE EXHIBIT

A universal armature banding machine is a new feature of the Electric Service Supplies Company at space 414. This machine embodies an important advantage over the ordinary method of treating armatures in avoiding the necessity of removing armatures from a separate lathe, because it constitutes a single piece of apparatus for winding, banding and painting armatures and for truing, slotting and grooving commutators. This company is displaying a new line of flatter and wider insulators of greater strength, mechanically and electrically, than its former high-pin type.

Another improvement has been made in the design of Garton-Daniels lightning arrester box, the opening door to which is now constructed with a hinge at the top of the box instead of at the side, as formerly. This arrangement, in case of a direct stroke of lightning, enables the hot gases produced within the box to escape more readily, without injuring the device. A high-frequency apparatus for artificially simulating a lightning disturbance is operated for those who desire to test the efficiency of the arresters. Still another innovation exhibited by the company is its "Melobeam" headlight, in which violet and ultra-violet rays are suppressed by means of an amber-colored glass lens, leaving only the rays of longer wave length, which penetrate better and without glare through fog, dust and darkness. This company is exhibiting its complete line of Keystone car destination signs in a novel way by means of a device which revolves the sign curtain, and makes it pause for a moment at each destination lettering.

## GEAR TREATING AT THE NUTTALL PLANT

The R. D. Nuttall Company, showing at spaces 140, 142 and 144, for more than a quarter of a century has been supplying the railway trade with gears, pinions and trolleys. This company not only makes gearing for the railway field, but practically every gear application of the industrial world can be fulfilled in its extensive and complete plant.

The railway gear department is devoted exclusively to the cutting of gears and pinions for railway use. The heat treating department works in conjunction with this department, in that it receives gearing for heat treatment after having been cut. This heat treating department is fully equipped with heating furnaces which allow the heat to become gradually absorbed by the steel until it is of uniform temperature throughout. The pyrometers used for measuring temperatures are of the most improved type of water-cooled cold junction, rare metal couple. These are so constructed that if any one of them is out of order at all no temperature is recorded. This eliminates any slight discrepancies in the recording of the temperature. As an additional safeguard, however, these pyrometers are checked from time to time.

The quenching baths are large enough to permit continuous operation throughout the day without the loss of cooling efficiency. Several tanks of different solutions provide a good range of cooling mediums through which the desired rate of cooling can be obtained. Low temperature furnaces and drawback baths permit uniform tempering at any desired temperature. This insures a material of uniform hardness.

The heat treating department is under the constant supervision of an experienced metallurgist who works closely in touch with the research department toward the development of high-grade gears and pinions.

George Scott, of the Cleveland Fare Box Company, is attending the convention in the interest of his company. The company has no exhibit this year but Scott says the growing demand for locked fare boxes is such that his company will make an exhibit at future conventions.

# Among the Exhibits

Easy and safe access to interurban cars is demonstrated by the folding step shown here for the first time by the Blake Car Step Works.

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E. H. Hauserman, Cleveland representative of the G. Drouvé Company, arrived this morning to attend the convention. He is some baseball fan.

* * *

F. N. Root, of the Root Spring Scraper Company, arrived here Monday. He has no exhibit this year but is chuck full of efficiency talk about his six types of spring scrapers.

* * *

H. B. Logan, President of Dossert & Company, is attending the convention in the interest of Dossert cable connectors for electric railway power and substations. He is stopping at the Marlborough-Blenheim.

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Jim Patton, of St. Louis, is reported to be carrying his arm in a sling. It is reliably reported that too frequent pushing of Pullman buttons often causes temporary paralysis, but of course this has nothing to do with Jim.

* * *

Tom K. Bell and E. Walter Jansen of the Atlantic Welding Company, New York, are here in the interests of an absolutely new method of electric rail welding. This method has met with remarkable success abroad and is now available to meet the most arduous conditions of American electric railway service.

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Barnes & Kobert Manufacturing Company, Milldale, Conn., reserved space at the convention, but was unable to exhibit, largely on account of a rush of business for the fall season and the fact that it has recently moved into its new plant at Milldale, Conn., which it is now equipping with new machinery.

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The interests of Arthur D. Little, Inc., Boston, Mass., are looked after at the convention by C. F. Woods, engineer of the Little laboratory. He is stopping at the Dennis. As chemists and engineers of tests this organization is rendering valuable service to a number of electric railway properties in the purchase of materials, from the coal pile to the track, line and car outfits.

* * *

The Manganese Steel Rail Company, New York, is represented at the convention by W. S. Potter and A. Aigeltinger, chief engineer and metallurgist of the company. This company has for some years marketed manganese steel T-rails to steam and electric railways. It is now preparing to manufacture girder manganese steel rails which will be ready for the market within the next three or four months.

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The Pyrene Manufacturing Company had an opportunity to demonstrate the effectiveness of the Pyrene fire extinguisher Tuesday afternoon. A fire started in the exhibit of the Indianapolis Switch & Frog Company but, thanks to quick action and the extinguisher, the blaze was quenched before it had a chance to do any damage. "They're handy things to have around," says Mr. Maloney, the sales manager.

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While the man who said "it can't be did" has been nursing his despair, the Westinghouse Traction Brake Company has gone ahead and done it. The problem of providing an automatic coupling of all control and other wires between cars has been worked out in a thoroughly practical manner. A complete equipment of automatic car and air coupler combined with the electric coupler is being demonstrated in the Westinghouse booth for the benefit of all convention visitors who may be interested.

The feature of the Railway Roller Bearing Company in space 134 is its Rollway oil-tight bearings for railway trucks and motors. The bearing has a fixed end-thrust adjustment and its main parts are reversible so that it is easily assembled on the axle through screwing all nuts tight. There is also displayed a model of solid roller-bearing, free-running wheels on a stationary axis, as well as models of roller-bearing shields, roller-bearing centerplates with cone-disked rollers and roller-bearing interchangeable journal boxes.

* * *

In space 507 in the Annex the Standard Paint Company, New York, is showing for the first time the "Imp" shingle for roofing. This shingle is made of the same composition as the well-known Rubberoid roofing, a non-brittle fire resisting material, with great toughness and strength estimated to last from two to three times as long as the best cedar shingle. The New York Central, Virginia Railway, and the C. C. & O., have recently completed installations on a number of new stations along their lines with "Imp" shingles. There is also exhibited a composition board for interior finish and decoration called "Amiwud." The board is shown in various finishes. Besides these, P. & B. insulating specialities are displayed.

* * *

The G. Drouvé Company, space 607, is again in the same location, the hotel men's annex, near the meeting halls of the American and Engineering Associations. Welcome is written on the mat and first aid service can be rendered to those desiring permanent fireproof and weatherproof ("Anti-Pluvius" puttyless) skylights. The "straight-push" sash operator meets the problem for the regulation of natural ventilation and is designed for difficult and unexpected service. Mr. Dee, Bridgeport, Conn., and Mr. Hauserman, Cleveland office, are in attendance, and when it comes to daylight and natural ventilation matters they have dozens of references to cite and "to help the man who wants to know and profits through the experience of others."

* * *

In addition to the exhibition of Nuttal standard railway material, including gears and pinions and trolleys, the R. D. Nuttall Company demonstrates the practical heat treating of steel as applied to its various grades of gears and pinions. In addition to this, it demonstrates the use of machines for determining the hardness, abrasive qualities and resistance to impact, with special machines for this purpose. It also shows the latest development in railway gearing, including flexible gears as used on the motor cars of the Pennsylvania Railroad electrification, Paoli Division. Further, it presents the latest developments in current collecting devices, including pantograph trolley, such as will be used on Pennsylvania electrification, and other types of pantograph current collectors for a. c. and d. c. electrifications.

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In connection with its exhibit of electric railway overhead materials, rail bonds, third-rail insulators, car equipment devices and "Hi-Tension" insulators, the Ohio Brass Company, in spaces 358-365, is planning to have in continuous operation during the convention several tests and demonstrations of the various devices under working conditions. Electrical tests will be conducted on several different forms of strain insulators for electric railway circuits and also on the high-voltage transmission line insulators. Any who are interested in the study of insulating materials can undoubtedly acquire some valuable data at this booth. Tomlinson couplers and several other car equipment devices will be so demonstrated as to show clearly their behavior under operating conditions. The plan is to have something going on at the O-B booth at all times.

In space 18, Main building, the Flood & Conklin Company, Newark, N. J., is demonstrating the efficiency painting and varnishing of railway cars, in its Simplex one, two, three and four coat varnishing process.

* * *

The American Steel & Wire Company has a working exhibit which includes Ben Ryder and an electrically operated four-spindle motor drill for applying their twin-terminal bonds. An interesting feature of this drill is that it does not clamp to the track.

* * *

Ramapo Iron Works, of Hillburn, N. Y., is represented at the convention by James B. Strong. T-rail special work, electric and steam railway crossings, manganese frogs and switches and Ramapo patent safety switch stands for interurban service are manufactured by the company at Hillburn.

* * *

Henderson W. Knott ought to be happy because a representative of the Chicago Surface Lines has said that Morganite E-G-3 brushes, the highest priced and best brush that Knott sells, will hereafter be used on the surface line cars in Chicago, where there are more than 3500 of these cars. Hence Henderson's happiness.

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Mr. Mason is representing his own interests, E. R. Mason Company, New York, at the convention. As Eastern representative of the Johnson Fare Box Company, Hunter Illuminated Car Sign Company and the Esterline Company, he is busy showing his railway customers and friends the exhibits of these companies on the pier.

* * *

The old hickory bower swing is just in the rear of the Drew Electric & Manufacturing Company exhibit of line supplies. James Drew is talking about the motorman's safety mirror, protective and reclaiming pole sleeves, Sampson pipe insulation for the prevention of electrolysis, Drew type trolley frogs and a lot more good overhead and line material. Walter Healy is here, too.

* * *

R. M. Campbell is present at the convention, representing the railway department of the Detroit Graphite Company. His headquarters are at 135 Broadway, New York. The Detroit Graphite Company is a maker of general paints for every purpose where paints are used. Mr. Campbell is concentrating on sales of paints for cars, trucks, poles, bridges, power-houses, stations, buildings, for electric and steam railways.

* * *

Forged manganese steel bolster and transom shifting plates, transom gibs and brakepins are the features in the Alloy Steel Forging Company's exhibit in space 569. Tests of these materials extending over one year are being conducted on twenty electric roads, but none have been completed because no parts have worn out or broken. The claims for this company's products are that they do not crumble and parts may be made much lighter with greatly increased life.

* * *

The Electro-Mechanical Brake Company, Ltd., West Bromwich, England, in space 610 is showing E M B unbreakable jointless grid resistances for traction and industrial use. These resistances, as recently described in the Electric Railway Journal, represent a great advance over ordinary cast types by reason of their jointless, rustless construction and other features. Specimens are displayed of the equipment used by the London County Council and the Birmingham, Adelaide and other electric railways.

* * *

The Index Visible, Inc., is displaying in space 523 a card system which is devised to eliminate all hunting through cabinets for cards. The cards are all placed in the index in plain sight with the keyword of each shown in the visible margin so that it is impossible to misfile a card. The flexibility of the system allows it to take care of 100,000 cards just as easily as of 1000. It is particularly adapted for use by electric railways in connection with subsidiary ledgers, stock records, cost records, purchasing agents' lists and payrolls.

* * *

The result of a remarkable gear and pinion service test is shown by the Joseph Dixon Crucible Company at exhibit space 16. This company is showing a half-section of a G. E. gear which has been in service continuously for the past six years on the Northampton, Easton & Washington Traction Company, and which was recently removed from a car after having made more than 300,000 miles; also a pinion, which has been in continuous service on the same road for five years and which made more than 250,000 miles. Dixon's graphite wood gear grease was the only lubricant ever used on these gears.

* * *

In space 314 Ernest H. Thompson is displaying an electrically operated fare box with an attached change-maker as an integral part. Six electrical connections are made through the base of the box, which is removable. The deposit of the exact fare is recorded on the totalizer and also by one hand of the overhead register, while the presentation of a transfer results in the conductor pressing a plunger to work another totalizer and to turn the other hand of the overhead register. The change-maker, the slot of which may be kept closed at the will of the conductor if desired, gives change for dimes, quarters, and half dollars directly to the customer. The object is to eliminate the conductor from the coin-handling process and to perform his fare collecting functions mechanically.

* * *

The Hale & Kilburn Company has a unique exhibit in the shape of a 40-ft. steel car interior equipped with its steel finish doors and seats, of the various standards used by the leading railways, thus affording the visiting officials opportunity to examine and test as in actual service in the car itself, the important features included in this company's product. One end of the car is equipped with its new steel transverse seating adopted for the New York Municipal Railway cars now under construction. The windows of the entire car open on the ocean, and a delightful view can be had while enjoying the very comfortable seats arranged opposite each car window. The exhibit has excited many favorable comments and it is referred to as the finest and most unusual ever seen at any convention.

* * *

In spaces 36 and 38 the Hunter Illuminated Car Sign Company, Flushing, N. Y., has a most extensive exhibit of illuminated car signs. Over the center of the aisle is suspended an illuminated sign operated by a motor. In this sign is a 30-ft. curtain with thirty-five destinations printed on it. The 175 new center-entrance cars on the New York Railways are equipped with this type of sign. A sign is also displayed similar to that furnished for the 125 new cars recently put into operation by the Municipal Railway of San Francisco. This is an open-front sign, so constructed that the curtain can be taken out as a unit, the curtain being interchangeable for other cars, whenever rerouting is necessary. There is also exhibited a route number sign of right-angle construction, one side of which faces the front of the car and the other the side of the car. In this are numbers from "1" to "99" printed on the curtain. The Pittsburgh Railways have 200 cars equipped with this type. One sample sign is shown of those furnished—four to a car—on the 228 new cars of the Chicago Railways. Also a twin-operated sign for the side of the car similar to those recently furnished to the Rhode Island Company, Providence, and the Bay State Railway, Boston. Other types of illuminated signs are also shown.

J. N. Johns Manufacturing Company, New York, is exhibiting bearings of all types, brush-holders, trolley wheels and other maintenance specialties.

* * *

Heywood Brothers & Wakefield Company are exhibiting in space 566, car seats with steel construction throughout, upholstered in rattan; light steel reversible seats with plush and wood cushions, and reed parlor car chairs.

* * *

Lefax loose-leaf engineering data, pocketbooks, filing boxes, blank sheets, and other specialties comprising the Lefax service are shown by the Standard Corporation at space 10c, in care of J. C. Parker, Bernard Dieckhaus and William C. Wells, Jr.

* * *

A full-sized car cable of unusual flexibility is the feature attraction of the exhibit of the John A. Roebling's Sons Company at spaces 17 and 19. The flexible quality of the cable is secured by lining it up like a regular cable, thus making it easy to handle and to install.

* * *

In space 319 the McQuay-Norris Manufacturing Company is showing a complete line of its well-known leak-proof piston rings. These rings are made in sizes from 1 in. to 34 in. in diameter. This company has recently moved into its new factory and is now better prepared than ever to make prompt deliveries.

* * *

Various styles and sizes of Penco culverts are on exhibit in space 108, occupied by the Penn Metal Company. The well-known merits of this company's culverts are that the metal is non-corrosive and that the shape of the culvert is designed to give a smooth bottom. This culvert pipe is furnished knock-down and the sections are bolted together at the point of installation.

* * *

The Acme Supply Company, Chicago, has become a full-fledged member of the Manufacturers' Association and now has a lot to say about several new car supplies, fittings and materials. Its products have been exhibited, as they are this year, with the Transportation Utilities Company, its Eastern agent. Several brand-new products ought to get a good reception by rolling stock engineers who are anxious to keep a little bit ahead of the procession. These new products include Regal revolving curtain box, Crown and Gem pinch handle curtain fixtures, Kass safety step treads and duplex weather-proof windows. There are a lot of other old reliable products to be seen, and also this company is showing full size metal doors and trims as built for the 200 New York Municipal subway cars.

* * *

Most everybody knows of Prest-o-lite. That is, every automobilist or motorcyclist does. And now many will see for the first time the application of the chief product of the Prest-o-lite Company to electric railway construction, operation and manufacturing industry. This company, a new member, has a working exhibit of welding and cutting. It shows portable oxy-acetylene outfits for shop, track and line use. A most convincing part of this display is a group of broken parts such as truck frames, journal boxes, motor housings, grids, etc., that have been welded. The oxy-acetylene process of applying rail bonds is also shown. Demonstrations of the cutting and welding of various metals will be made at frequent intervals. Among those in attendance are H. Sidney Smith, engineer, and S. D. Winger, railway salesman.

* * *

The Federal Signal Company at space 131 has several working signals and is making a particular feature of application to a.c. signaling. The light signal similar to that used in the Brooklyn Rapid Transit installation is shown in operation. The exhibit includes also an interurban signal of three-position, 4-A, bottom post type. In this the mechanism is entirely inclosed and room is allowed in the case for auxiliary apparatus, such as the track and line relays, terminals, lightning arresters, etc. This auxiliary apparatus is shown on separate racks, and in addition there are displayed a track transformer, single and polyphase relays, heavy reactance bond, etc. A standard Type 4, low-voltage universal signal is also shown. This type can be used either as top-post, bottom-post or dwarf signal.

* * *

A station coin register having features entirely new is shown by the International Register Company, spaces 300, 302 and 304. This machine was designed to meet conditions in the subway and elevated stations at Boston and eliminates the sale of tickets. The lower part looks like a ticket-chopper and receives in a hopper, 10-in. square, nickels, dimes or cents. These fall on a revolving cylinder, where they may be inspected by the attendant and are then automatically registered on a fare register mounted on a column above the machine. The registering mechanism is driven by an electric motor running continuously. Three thousand to 4000 fares per hour can be taken in one of these machines, at a large saving in the cost of tickets and the wages of ticket sellers. In its operation change is provided at a separate booth, where only a small percentage of passengers are received. Thus the time saved to the public in having exact change reduces change making to a minimum. These machines may be seen in operation in the new Boylston Street subway at Boston.

* * *

The Graphite Lubricating Company, oil-less bearing specialists, Bound Brook, N. J., are represented at the convention by George O. Smalley, assistant general manager. This company plans to make a change in the graphite insert of its trolley wheel bushings commencing Jan. 1, 1915. After that date all inserts will be made to form the words "Bound Brook," which is the trade mark of the company. The word "Bound" will be formed by the insert on one-half of the bushing, and the word "Brook" by the other half. This change will be inaugurated as a further protection for its customers and as a means of affording a definite way of knowing whether or not they are securing the genuine "Bound Brook" bushing. Advance samples of the revised bushing are shown in the booths of R. D. Nuttall Company, Electric Service Supplies Company, Sterling Fare Register Company, Star Brass Works, A. & J. M. Anderson Manufacturing Company, Western Electric Company, and the Bayonet Trolley Harp Company.

* * *

Charles N. Wood Company, Boston, is showing the Chapman automatic signal. In this signal all indications are given by a three-position semaphore arm (non-inclosed) and the method of operation is such as to prevent any misunderstanding of signals by the motorman. At night the indications are given the same as in the daytime, the arm being illuminated. Colored lenses may be attached to the semaphore arm if desired as in steam railroad practice. Only two line wires are required. This is a very important feature, as a multiplicity of line wires makes for an increase in line and signal troubles and adds greatly to the cost of installation, as well as maintenance. This is a car-counting signal, the counting mechanism being very simple and reliable, with few parts. Even if cars enter and leave the block at the same time a correct count in maintained. The signal indication given to allow a car to enter the block follows only after the actual operation of counting in the car has been completed. The lights to illuminate the arm at night are all independent local circuits and not connected with operating circuits, therefore any failure of light does not affect the operation of the signal.

The Cooper Heater Company, Carlisle, Pa., is showing its forced ventilation hot-air heaters and pressed steel hot-air heaters.

* * *

The Sterling Varnish Company, Pittsburgh, is exhibiting samples of insulating varnishes, impregnating compounds and iron enamel paints.

* * *

The National Car Wheel Company offers the Star Special, a chilled cast-iron car wheel of special design and special quality for city and interurban service.

* * *

S. Abrahams Company, Philadelphia, has a full line of uniforms and caps of all descriptions to make the electric railway employee spic and span as any man.

* * *

In Aquarium Court the Wilson Remover Company is demonstrating in a practical way the application and efficiency of its paint and varnish remover.

* * *

J. F. Decker, of the Auto Utilities Manufacturing Company, maker of the Peerless ventilator, is attending the convention but is not making an exhibit this year.

* * *

The Kerite Insulated Wire & Cable Company, in spaces 130 and 132, has on display various sizes of submarine, aerial and underground wire. The particular features are Kerite signal and high-tension wires.

* * *

An attractive reception room has been arranged by The Okonite Company in space 168. The company is exhibiting a varied assortment of Okonite wires and cables, Candee potheads and Okonite and Manson tapes.

* * *

P. Edw. Wisch, of the P. Edw. Wisch Service, New York, is attending the convention in the interest of his own business,—secret service work for street and interurban railways. He is stopping at the Marlborough-Blenheim.

* * *

The Dupont Fabrikoid Company has on exhibition Fabrikoid artificial leather as well as railway car seat upholstery and Fabrikoid car curtain material. These goods are shown in the loose form, and also on car seats upholstered with Fabrikoid as well as car curtain models.

* * *

The Buda Company's representatives, in space 311, are extending a cordial welcome to all visitors and incidentally have on exhibit models of this company's iron-bound bolted-down manganese insert special track work set in partially machined pockets. Also a number of large photographs of complicated layouts in various parts of the country are being shown.

* * *

The Wyoming Shovel Works are exhibiting Wyoming Mayari nickel chrome steel shovels, not alone track shovels but concrete shovels, scoops for power-house purposes, etc. The use of nickel chrome steel in shovels is so revolutionary that the claims made for it seem highly exaggerated, but the works have some elaborate testing machines in operation to prove the tremendous wear-resisting powers of the Wyoming Mayari shovels.

* * *

F. F. Stockwell, W. W. Field and F. H. Ellis of the Barbour Stockwell Company, Cambridge, Mass., together with a contingent of railway men arrived on Monday morning to attend the convention. Although the company has no exhibit, its representatives can tell you all about special track work manufactured of solid manganese steel, manganese insert work in steel and iron-bound or its well-known forged steel insert frogs and crossings.

The Standard Underground Cable Company at "The Sign of the Reel," space 388, is featuring "Standard Special Bronze (SSB) trolley wire," a trolley side feeder subway switch box, Colonial copper clad wire for guy wires, etc., and other products of particular interest to railway companies. Its exhibit also includes a complete showing of bare and weatherproof wires, lead-covered and armored cables, jointing materials, indoor and outdoor cable terminals and subway junction boxes.

* * *

The Rooke Automatic Register Company is exhibiting two cases containing fifty automatic collectors. These cases are similar to those in use on electric railways using Rooke registers. On the inside of the door of these cabinets are complete directions on how to use the register. The adaptability of these registers to take care of nickels, dimes and metal tickets is also being demonstrated. On one system about $5,500,000 is collected annually with Rooke registers without the loss of a fare. The company has lately equipped the Hazleton (Pa.) division of the Lehigh Valley Traction Company. The Hillside Transportation Company, Inc., Jamaica, N.Y., is also equipping its line with this register.

## ARTICULATED CARS AT BOSTON

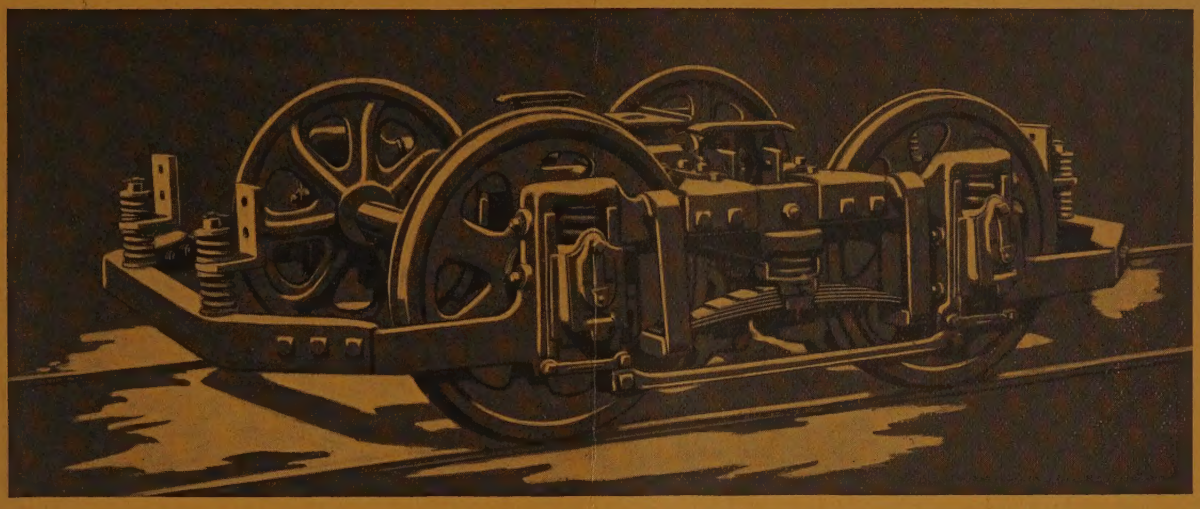
The Boston Elevated Railway began the use of articulated cars in 1912 in the belief that this method of construction would relieve the company from the drawbacks of operating rolling stock of small capacity on lines subject to a growing traffic. The type of car thus developed by John Lindall, superintendent of rolling stock and shops, has been thoroughly successful. Thirty-two articulated cars are now in service, and thirty-seven more are to be constructed in the near future, including six assembled from 25-ft. car bodies. Car bodies 20-ft. long have been utilized up to the present time in the formation of the complete articulated cars.

No complaints of importance regarding these cars have been received, boarding and alighting accidents have been greatly reduced by their use, and they have shown particular value in runs on short lines to and from terminals where quick loading without collection of fares by conductors is desirable. The step height of 14-in. above ground with a 6-in. step from the intermediate platform into the car body was provided to facilitate safe and convenient ingress and egress, this feature having been adopted many months before the question of step heights was taken up by the Public Service Commission of Massachusetts. The prepayment feature also has been found as valuable in these cars as in other types. In fact, as an economical means of utilizing good rolling stock whose capacity is fast being outgrown, the Boston articulated car is very successful.

The Department of Liberal Arts enjoys the distinction of having the first completely installed exhibit at the Panama-Pacific International Exposition. This is a "working exhibit" in the Palace of Liberal Arts by the Star Electric Company, Binghamton, N. Y., and forms the central fire and police alarm signal station for the entire exposition grounds.

A novel device for electrocuting rats was rigged up recently by the crew of the railroad station at Fort Wayne, Ind., where they believe in "doing it electrically." Not long ago rats entered the basement of the new station through the coal chute and gave trouble until the stationmen got together and constructed an electric chair especially designed for rats. The "chair" consists of an iron plate with a steel spike suspended above it, both the plate and spike being connected to the two wires of an electric circuit. With the spike baited with a piece of cheese, the rodents which venture upon the plate and reach upward complete an electrical circuit through their bodies and thus become their own circuit through their bodies.—*Electrical World.*

# THE BRILL 76-E TRUCK



SPECIAL attention is called to the Brill 76-E truck exhibited this year for the first time. It has the new graduated spring system (patented) which is the most important development in truck construction in many years. It provides smooth riding for lightly loaded carbodies and practically eliminates wearing of parts. The end of the bolster is cast to form a cap for a coil spring interposed between the bolster and the semi-elliptic spring. This coil spring has a play of 3/8 in. between the casting in which the coil spring is seated and the bolster; when the car has between half and a full load of seated passengers, the spring action is entirely transferred to the semi-elliptics. By this means the minor shocks and vibrations, which would otherwise be communicated to the body through the semi-elliptics which are friction springs, and the journal springs whose action is dampened by the weight of the motors, are absorbed, resulting in singularly smooth riding. The large diameter of the bolster coil spring and the flat bearing of the ends of the semi-elliptics prevents side swaying. Master Mechanics are especially invited to make a careful study of the Brill Graduated Spring System for light and heavy loads.

THE J. G. BRILL COMPANY
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AMERICAN CAR COMPANY
St. Louis, Mo.
G. C. KUHLMAN CAR CO.
Cleveland, Ohio
WASON MANUFACTURING CO.
Springfield, Mass.
COMPAGNIE J. G. BRILL
Paris, France

BRILL

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# The G-E Exhibit At Booth No. 20

## American Electric Railway Association Convention

## See the Latest Developments in Railway Supplies

The G-E exhibit of railway supplies includes the most up-to-date types of line material and railbonds.

The famous Grade M Gears and Pinions, adopted as standard by fifteen large roads, are also on exhibition as are samples of the catenary line material used in the electrification of the Butte, Anaconda and Pacific Railroad, a model installation in every particular.

Don't fail to visit this interesting exhibit.

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For Texas, Oklahoma and Arizona business refer to Southwest General Electric Company (formerly Hobson Electric Co.), Dallas, El Paso, Houston and Oklahoma City. For Canadian business refer to Canadian General Electric Company, Ltd., Toronto, Ont.

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